

THE RELIGIOUS ATTITUDE



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THE RELIGIOUS ATTITUDE

*A Psychological Study of Its
Differentiation*

BY
ANGUS STEWART WOODBURN

Introduction by
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INTRODUCTION

The historian of religion must pursue his way between the Scylla of primitivity and the Charybdis of philosophy. From each of them he may gain valued information, but to neither of them must he commit himself. Our literature is filled with treatises on the practices of uncivilized peoples, but there is too little study of the more complete religions. Indeed, one is tempted somewhat cynically to say that while the study of the religion of the Bantus is scientific, the study of the religion of Western civilization seems to need an apology. If such an antithesis be too radical, a study of the literature of the history of religion will show how unconsciously the student passes from the study of concrete religious attitudes and practices to religious doctrine and philosophy. No religion can be known by exclusive study of its sacred literature. But even less can it be understood by the neglect of its more complicated and finished stage. It is easy to say that philosophy becomes religion, but such a statement indicates a mental confusion. The psychology of philosophical thinking is very different from that of the devotee of religion. Neither by the study of primitive religious customs nor by the exposition of the rationalization of religious trust and hope can the religious attitude be expressed with fullness and accuracy.

It is one of the merits of Professor Woodburne's work that it has sprung not only from a wide orientation in religious science but from a fortunate first-hand acquaintance with the developed religion of India, as well as with Christianity. The more extensive a student's observation and experience, the more worthy of attention are his conclusions. That is, let it be quickly added, if he has no thesis to prove, but only conclusions to reach. I believe this to be true of Professor Woodburne. He has an academician's knowledge of primitivity, and in Madras he has also actual contact with two such divergent techniques as those of Christianity and Hinduism. As a result, he has made a thoroughly valuable contribution to the psychology of religion. With noteworthy exceptions, students in this field have not been in a position to make first-hand comparisons and inductions in the field of highly developed religions. The distinction which he draws between religious attitudes and the methods of scientific investigation has quickened his sense of the importance of the scientific method. For these reasons, as well as for its commendable reserve in making unqualified statements, Professor Woodburne's work is an example of well-directed research which, on the one side, is more than a doctor's thesis, and on the other, is more than a free speculation as to what religion may or may not be.

SHAILER MATHEWS.

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CHAPTER I

THE PSYCHOLOGICAL METHOD IN THE STUDY OF RELIGION

THE use of the psychological method in the study of religion is of comparatively recent origin. Indeed the attempt to use any scientific method for examining religious facts is a strictly modern procedure. The first time that an educational institution attempted such a study was in 1884 when the Collège de France added Comparative Religion to its curriculum. In the first instance the proposal was met with much opposition, one of the professors remarking, "If religion be true, it is natural and you do not need to study it; if it be absurd, you do not want to study it." Since that time progress has been exceedingly rapid, and many scholars have laboured in the fields of the history and psychology of religions, greatly enlarging the stock of human knowledge in regard to these fields.

The question suggests itself as to what movements of thought made possible the beginnings of the scientific study of religion. A complete answer to the question would require a very extended study with many acknowledgments. It is impossible in this connection to do more than indicate a few of the more conspicuous influences. The age of discovery and invention gave

rise to the beginnings of induction. With Francis Bacon and Descartes the modern period in philosophy, characterized so distinctively by inductive reasoning, began. These men carried into the field of the mental processes the method of natural explanation which the astronomers had found to be very fruitful in their investigation of cosmic processes. From the seventeenth century onward, induction has been practically a synonym for scientific method, the method itself increasing in effectiveness as scientists have learned through experience the best way of using it. The use of the method of trial and error in the formulation and testing of hypotheses has been particularly serviceable in making the inductive method more objective and scientific.

Bacon and Descartes did little more than introduce the scientific spirit into philosophy, and their positive contributions are not nearly so significant as the contributions of those who built upon the foundations these men laid. The British philosophers, Locke, Berkeley and Hume made a great step forward in their critiques of the concepts of substance and cause, those concepts with which modern philosophy uncritically started. Locke attempted a treatment of the psychological origin of our ideas without metaphysical assumptions. Substance for Locke was the unknown bearer of perceived properties. The mind itself is a blank sheet on which sensation and reflection may write. Berkeley criticized the sensationalism of Locke and carried the analysis one step further. He wanted to know by what right Locke had assumed this unknown bearer. Locke's criticism of secondary qual-

ities, he claimed, was also applicable to his so-called primary qualities, and Hume added, to the mind itself as an object of knowledge. Berkeley believed that substance was a fiction which philosophy had inherited from the scholastics. Accordingly he substituted a complex of ideas for substance. "To be is to be perceived" was his formula.

The task of disintegrating the old metaphysical concepts of substance and cause, thus begun by Locke and Berkeley, was carried to completion by Hume. It was from the standpoint of the psychological principle of the association of ideas that he attacked the causal concept. He maintained that the causal connection between events which men assume is not a necessary connection intuitively recognized, neither something perceived nor yet an experience. It is rather something which is added by imagination to perception, a conclusion reached after successive observations of events in association. Perception can furnish us only with *post hoc*. It is through imagination that we conclude *propter hoc*. Hume is important for us not only for his psychological criticism of metaphysical concepts, but also for his investigation of religion. He wrote *The Natural History of Religions*, a volume whose very title is significant of the dawn of a new era. In mediæval thought "natural" and "history" were antithetical terms to "religion" and "revelation." He traced the beginnings of religion to primitive feelings of terror, fear and hope engendered by contact with nature, and these feelings, together with the contrast which he drew between the natural course of events in the cosmic order and the vicissitudes of human experi-

ence, led to the formation of ideas of higher powers which man attempted to conciliate and worship. The earliest form of religion was polytheism; and the history of religion is a history of a gradual transition from polytheism to monotheism.

The stream of reflection divided with Hume, different currents flowing in different directions. One stream flowed on through Lessing and Herder. These men continued to use the historical method in investigating the faiths of non-Christian peoples. Both of them were men of deeply religious natures and conceived of religion as a vital and mutual relation between God and man. Religion is impossible apart from revelation, and the history of religions is an account of God's revelations to man, and God's education of the human race, the revelations being characterized by a successive-ness of deeper and profounder meanings as God gradually unfolded Himself to man. Both of these men had an evolutionary doctrine which anticipated that of Hegel, and which they applied to religion. God teaches one truth after another as men develop in the evolutionary process to the point of being ready for such revelations. Christianity is one step in the evolution of the highest spiritual religion. Nature and spirit are both elements in one great organism through which God reveals Himself.

Another stream which found its source in Hume was positivism. Comte, like Hume, found the origin of religion in human nature, in fear, hope and the causal impulse. Comte declared that supraphenomenal reality was unknowable to man, so that religion in declaring the reality of God was an illusion, perhaps

even a delusion. Comte followed Hume in declaring that it was imagination which peopled the unseen world with powers. The doctrine of the unknowability of God was taken up by John Stuart Mill and Herbert Spencer. The ground of their argument was that it is possible to know only phenomena. Religion thus introduces man to the realm of the super-experiential. The positivistic contention is that the beginning of human history gives us cultureless religion, but at the end we may expect religionless culture. An open-minded investigation of the place which religion has occupied and still occupies in human life must convince us that positivism is too doctrinaire to be scientific. Its only notable contribution for our purposes was the investigation of religion as a social product of human experience, a point in which it has affinity with social psychology.

In some respects the most important work which Hume accomplished was that of awakening Kant "from his dogmatic slumbers." The period of the Enlightenment found its culmination in him and his critical method. He examined the form in which the principles of reason appeared in connection with their capacity for being employed necessarily and universally in experience. His work was thus a critique, not only of the content of consciousness but of the reasoning process itself in its various functions. He examined the traditional metaphysical arguments for the existence of God, the physico-theological, the cosmological and the ontological, and showed that they were unwarranted objectifications of the principles of reason. He therefore denied the possibility of demonstrating the

existence of God by philosophical argument. In place of the traditional arguments he set up the moral argument, claiming that it is necessary for the moral life to posit the existence of God. Religion for him rested upon interpreting moral laws as divine commandments. In his work, *Religion within the Bounds of Mere Reason*, he claimed that he had destroyed knowledge to make room for faith. Thus Kant contributed to the emancipation of religion on the one hand from metaphysical dogmatism, and on the other hand from theological ethics.

Another name which is associated with the newer view of religion is that of Schleiermacher. His work was of especial significance from the psychological point of view, since he found the basis of religion in the feelings. He defined religion as "the feeling of absolute dependence." From that feeling there arose the God-consciousness which provides the power needed by human nature for its moral perfection. This emphasis on feeling was the result of a violent reaction against the contemporary rationalism of the deists, and its error was the error of all violent reactions in swinging to the opposite extreme. The influence of Schleiermacher on the philosophy of religion has been twofold. In the first place he left an impression which it has been difficult to eradicate that there is a necessary opposition between the cognitive and affective factors in religion. It has been difficult for the intellectual element in religion to regain recognition since the days of Schleiermacher. But on the other hand he was one of the pioneers in the examination of the religious consciousness from the psychological view-

point, and the possibility of progress in the use of that method owes much to the work of the German theologian.

The nineteenth century saw a new impetus to the scientific study of religion coming from the side of history. The increasing use of the inductive method was responsible for a keener desire to broaden the range of human observations. A thoroughgoing observation of any human institution involves an investigation of how it came to be in the historical process, of the social atmosphere in which it was created and the order of sequence in its development. This method has been exceedingly fruitful in dealing with the facts of religion. It has rescued religion from the realm of the abstract and enabled students to deal with concrete facts. It has supplanted religion by religions, each of them related to particular social situations on the background of which they must be interpreted.

The historical method furnishes a survey of the way or ways in which human products have functioned and have altered to meet the exigencies of social situations. It also furnished the data for the work of classification and evaluation. By the use of the historical method one is compelled to appreciate the functional significance of all human creations. The mediaeval way was to try to give an account of truth through syllogistic processes; the modern scientific method investigates the worth of ideas and institutions in the historical process. That leads to an understanding of the relative character of all thought products, and of the necessity of working with a true organon. The organon to which the historical study of religion points

is that of its competency to do something for man which he needs to have done and which cannot be accomplished in any other way.

The historical method inculcates the habit of intellectual honesty. Actual problems demanding solution, concrete needs demanding satisfaction, social tensions demanding adjustment—such are the types of facts with which the historical study of religions confronts us. The deductive method is normative. It operates very well when the major premise is scientifically credible, but breaks down when called upon to explain exceptions. But the historical method is just as much interested in exceptions as in rules. Its first consideration is an accurate account of facts, the theoretical interpretation being entirely subsidiary to that. It is thus an out-and-out objective method, uncontrolled by any motive to reduce life to syllogisms. In religion this means the emancipation of the science of religion from theological dogma, and perfect freedom to observe and record the facts of religious experience without reference to *a priori* judgments.

A historical study involves the application of the genetic method. An interest in the functional value of an institution or discipline leads to an investigation of how it came to be in an evolutionary process. The present is not an isolated present, but has gathered up into it the past with all its experiences of struggle and achievement. Historical study makes it plain that no period has a right to claim a monopoly of spiritual values. But the values themselves are social achievements the meaning of which can be understood only by reference to their functional significance. That

means that the natural complement of a historical study is a psychological one. It is by the psychological method that the functional significance of an institution becomes clear. Social psychology enables us to place a religion in the social stream where it originated, and to relate the facts to the larger social whole in which the religion operates. History supplies us with a record of the facts; psychology relates them to the social consciousness of which they are expressions. The historical study has more concern with objectively observable facts, external forms and overt activities. For a scientific account of any religion the scrupulous accuracy which history demands is of the utmost importance. Already it has rescued students of religion from such unhealthy methods as manipulating facts to conform to theological theory, and of making comparisons which are as odious in religion as elsewhere.

There is no doubt that the historical study of religions has come to stay. It took a long time to emancipate it from the control of vested interests, and even at first these interests tried to assert themselves in the comparative method. A comparative study of religions may serve a useful purpose if it be carried on with meticulous scientific care, but it is exceedingly difficult to avoid the danger of being unfair. Some of the earlier studies in comparative religion were contrasts between a divine revelation, true and necessary, and human inventions, false and mischievous; but such studies are usually both unscientific and immoral. Of course the significance of the comparison is only with reference to a norm, and that implies some a

priori conceptions with which the student begins his work. The historical study of religions is not concerned with trying to compare and contrast so much as with tracing the development of a particular religion with reference to the other phases of the life of which it forms an integral part. Historical studies are thus as a rule studies of particular sects, cults, doctrines or movements, and they are wholly concerned to know the truth about such particulars. On account of the social character of religion, now clearly recognized, and the necessity of studying each religion in particular with reference to the social life, it has latterly become a subject to which social anthropologists have devoted no little attention. Anthropologists, with their investigations of folkways, social institutions, and in short everything related to the social life, have very largely increased our knowledge of the function of religion in the social life. In so doing they have coöperated very cordially with historians, and both together have placed the student of religion under a very heavy debt of gratitude.

Anthropology and history thus furnish us with the facts in regard to religious experience. But the student is not yet satisfied; for there are certain gaps because of the incompleteness of the records. Further he would like to know what were the mental factors which determined the succession of religious occurrences, what were the causes for the origin of religious phenomena, and how the religious consciousness itself originated. Obviously these are functional problems which transcend the limits of a historical investigation, and belong to the province of that science which

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studies mental processes, individual and social—psychology. The study of historical records is of far-reaching value in enabling students to be faithful to facts. But after the facts have been assembled, there still remains the task of interpreting their significance with reference to human interests, motives and sentiments, a task which necessitates the coöperation of the psychologist.

The advance made in psychological science itself is happily coincident with its use as a method for studying the phenomena of religion. In particular the change from the faculty to the functional psychology, and the progress made in social psychology have been significant. We are learning more about the social element in personality, and the fact that the individual's consciousness, mental and moral, is realized only in a social atmosphere. The rise of religion is in the corporate life of the group. Furthermore the religion of any folk involves a socializing of the supermundane world on the analogy of its own social structure. It is thus in the life experiences of folks, considered historically and socially, environmentally and organically, that we find the genesis and value of religious experience. For behaviour is socially determined both as to origin and direction. So that history and psychology alike lead into the sphere of social investigation.

The faculty method of dealing with the mental life, involving a tripartite division of the processes, made it difficult to account for the religious consciousness. Philosophers sought first in one and then in another of the faculties of the mind or soul the dominating

influence. Descartes emphasized the faculty of judgment as a result of which man was for him little more than a cognitive mechanism and God an epistemological device. Pascal shifted the emphasis from cognition to feeling, as is evident from his famous dictum, "Le cœur a ses raisons que le raison ne connaît pas." With Kant we have a further shift, this time to the will or practical reason, and in the practical reason he found the guarantee of our faith in God, freedom and immortality. Another outcome of the faculty psychology was the tendency to keep religion as a thing apart from the other interests of life, a tendency which we see in Lotze and Ritschl. Ritschl tried to make religion quite independent of science, by declaring that religion gives us value-judgments whereas science gives us existence-judgments, as if value and existence could be separated into compartments. The great difficulty of the faculty psychologists was their compartmentalized view of life which robbed it of the fundamental fact of unity. When applied to religion it tended to make it a particular affair of one faculty instead of being a vital concern of the whole life, and thus it entailed the exceedingly difficult problem of trying to invent some principle of unity.

The transition to the functional psychology was a change from the physical to the biological approach, a change from the structural and static to the dynamic view of the mental life. The gist of the matter is that the human organism is an integral unity, psychoneural in character, and that neither the mental nor the neural elements have any separate existence. The habit we have of talking of body, mind or spirit as if

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they were separate entities serves certain practical or theoretical ends, but we never experience them in separation. Our responses to stimuli are the responses of a single integral organism. The mental and neural processes are everywhere interconnected and inter-related. A second characteristic of the functional psychology is that it places the emphasis on processes and tendencies rather than on forms, structures and states. It views the mental life as a process of adaptation through which the organism adjusts itself to the environment, and in the sphere of these adjustments there emerge the conscious attitudes, of which the religious attitude is one. The functional approach is in line with genetic study through which we are able to trace the development of the processes from simpler and native types to more complex, acquired behaviour. It is not accidental that group psychology should develop at the same time as functional psychology, for it is really one manifestation of the newer view of the mental life. The psychologist is interested in every determinant of the directions of mental tendencies, and it is easily appreciated that the traditional ways of thinking and acting—the folkways—of the society of which one is a member are probably greater than any other determinant of individual behaviour. This point of view is of profound significance for all the mental processes, including the instincts, the emotions and the attitudes, matters of first-rate importance in the psychological investigation of religion.

The functional point of view in religion means that you view the religious consciousness as an integral phase of the whole conscious life. You study the facts

of the religious life, not as elements distinct and separable from the other elements of experience, but as particular responses to definite stimuli. Religious experience is a complex of attitudes, sentiments and overt actions, each of which ought to be analyzed from the point of view of biological reactions. The experiences of life present certain situations which demand responses of a religious character. The exigencies of experience invoke feelings of need which can be satisfied only by religious means. From the functional point of view psychology investigates these experiences of felt need and examines the way or ways in which man seeks to attain satisfaction for them when he is religious.

This approach to the study of religion is of far-reaching importance. It involves little less than a revolution in method. Instead of the traditional dogmatic method which began with its *a priori* conceptions of the results which must be attained, it substitutes the method of open-minded inquiry with a readiness to accept and record whatever facts come to light. The appeal is to function rather than to origins. The interest is not that of trying to establish absolute truth or falsity with reference to the different forms and beliefs, but of seeking to understand what need was satisfied, what motive released, what tension relieved, what interest served or what emotion expressed. Religious practices and ideas can be neither understood nor explained apart from the mental and social complex in which they emerge and to which they minister. The religious consciousness is thus related to the whole conscious life, individual and

social. This method of study has engendered a mutual understanding and sympathy hitherto unknown, while at the same time it has added scholarly contributions to the science of religion.

The mental life is exceedingly complex. The fact of complexity is one which impresses the student of the religious consciousness. This makes the matter of logical definition enormously difficult. The facts of religious experience are so multiform in their significance, their intensity, their degree of differentiation from other social facts, their cultural associations, as well as their geographical and chronological references, that the formulation of a definition of religion is increasingly difficult. One wonders, in view of the bewildering variety of phenomena that are described as religious, whether the attempt is desirable. One thing is certain. Religion, like science and art, is a collective term. There is no such thing as pure, abstract religion apart from the concrete, historical forms any more than there is pure science, pure art or pure ethics apart from the various sciences and arts and ethical systems. A definition of religion would be an abstraction of the elements common to all the concrete forms, and the task of formulating a definition is primarily logical. But inasmuch as the elements in common are chiefly mental or spiritual, while the cult side exhibits such a breadth of variety, the only kind of definition that could do justice to the situation must be psychological. Can we ascertain, with any degree of assurance, what the elements are which are characteristic of the attitude of mind experienced by people when they are religious? Such an

attempt to describe the religious consciousness is more likely to be scientifically successful than the attempt to formulate a definition. In other words a psychology of religion is more scientifically achievable than a logic of religion. It is more feasible to ascertain the attitude of mind common to all people when they are religious than to formulate a definition that will be commensurate with the great variety of individual religious experiences, practices and beliefs. It is only by this psychological approach that we may hope to ascertain the essential attributes of these expressions of conscious minds. The possibility of discovering a unifying tendency behind the multiplicity of religious phenomena is in a common attitude of consciousness which characterizes men everywhere when they are religious.

Various attempts have been made to describe the processes of consciousness when the response is religious. Religious experience is so much an affair of the total personality that it is difficult to define its psychological limits. Some have attempted to locate religion among the instincts. If the biological definition of instinctive behaviour be accepted, it will be seen that it is behaviour which does not require the functioning of the cerebral cortex and therefore belongs to a level below that of consciousness, consciousness when present being only a spectator. On the other hand it is quite possible to account for the development of the conscious attitudes out of instinctive reactions, even as it is possible to show that all acquired reactions are developed out of the material of native reactions. Though religious reactions are

conscious, still it is possible to trace their roots in those ineradicable native types of behaviour which one calls instinctive. Other scholars have endeavoured to identify religion psychologically as an emotion or a sentiment. In either case the emphasis is on the feeling character of the experience. While it is true that the affective is a prominent part of religious experience, it is not doing justice to religion as a concern of the whole personality to identify it with feeling. Some of the psycho-analytic school refer to religion as a projection of consciousness which is equivalent to describing it in terms of the imagination. There is no doubt of the activity of the creative imagination in the operations of the religious consciousness, but to deny that there is any objective stimulus to the religious reaction is a metaphysical interpretation of the experience which it is beyond the province of psychology to make.

The psychological conclusion which seems to be best warranted from the observable facts of religious experience that are so widespread and so multiform is that religion has taken its rise within the field of man's social attitudes towards the extra-human environment. By an attitude is meant a disposition to attend or to act in a characteristic manner. Attitudes are indeed the unifying tendencies of conscious life. The attitudes indicate the way in which mental development takes place through the organization of experience. They may be grouped on one basis into habits of conservation and modification according to the human need to conserve an acquisition or to modify a type. Another basis for classification is into the

social and the mechanical, according as the object to which the attitude is directed is conceived as a person or a mechanism. Now religion is the habitual disposition to seize upon the spiritual elements in the environment, the effort to organize and conserve them in the interests of the larger life. It originates and functions within the field of social relationships, having for its reference the cosmic environment. There is no other concept, logical or psychological, that so completely describes and includes the multitude of forms and activities which are expressions of the religious consciousness.

The religious attitude is based on the assumption that the universe is amenable to social manipulation and treatment. Although it has grown out of an ineradicable impulse in life, and is a persistently appearing product of the social consciousness, yet it is not always easy to differentiate it from other mental attitudes. It is not a compartment of consciousness, and neither are our other attitudes such as the æsthetic or the moral. It is one possible aspect of a unified consciousness, the aspect which consciousness assumes when the person is socializing with his cosmic environment. But it does not preclude the presence of other attitudes at the same time or closely related in time. It is a *person* who is religious or moral or æsthetic, and he may be all three at the same time. The mental attitudes must not be conceived as existing in isolation. They are constantly intersecting and interacting, and have mutual effects on one another. This makes the task of differentiation all the more difficult. The logical task involves dif-

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ferentiating the religious attitude from the magical, the scientific, the æsthetic and the moral. This includes an examination of the relation between religion and each of the other disciplines of thought. Since each represents an activity of conscious minds, the method of approach which meets the situation most satisfactorily is the psychological.

CHAPTER II

THE RELATION BETWEEN RELIGION AND MAGIC

THE relation between religion and magic is essentially a problem of primitive culture. It takes us back to the earliest stage of human culture, and involves much that is really prehistory. This is true because religion had its origin in such lowly beginnings, and magic not only originated in but belongs to that stage of culture. It is in the beliefs and practices of the primitive races that we are able to observe religion and magic in concrete relationship. Sometimes we find the kinship persisting even beyond the primitive period, but we always find it there. The tendency is with the more cultured races to free religion as completely as possible from magic, and to repudiate magic as inadequate and spurious. The growth of scientific knowledge is particularly incompatible to the persistence of magical ways of thinking and acting. Experience has shown that religion can persist and function alongside of science; but magic cannot. Magic belongs essentially to the pre-scientific period of human history. Religion, while varying in form and in clearness, belongs both to the pre-scientific and the scientific periods. It functions alike in an age of magic and an age of science. The change from magical to scientific ways of thinking

is always gradual. We may compare the age of magic to the childhood of the race, and the age of science to full-blown manhood, in which case we must say that the adolescent period of culture is often very long. So that we actually find religion and magic in relationship not alone in savage society, but far down into the period of culture, when mankind is making the slow change from the magical to the scientific. The ultimate disintegration of magic is not the work of religion, but of science. Magic may exist perhaps side by side with religion, but not with science.

The differentiation which we make between religion and magic is the product of the higher mental processes, processes which could have come into operation only when the human race had achieved a fair degree of development. The lives of peoples in the more primitive stages of culture are compounded of a medley of customs and practices with no effort at analyzing or classifying them into various groups or concepts. In such a society it is not possible to select some elements and attach a label, "Primitive man's religion," and still others which can be captioned "The magic of primitive man," and so on with art, morality and science. To be sure we, with our analytical training, can examine this social complex, and identify certain elements which developed into the various human disciplines. But we should not infer that they were so differentiated in primitive society. The lower the stratum of society the fewer are the wants of man, and the simpler are his ways of seeking to satisfy those wants. With the increasing of population, the contact between groups of people, and the ever-present

need to secure a plentiful supply of food, crises were sure to arise. And it was the crisis which engendered the higher thought processes, as well as the practical techniques that were evolved. So long as life's needs could be supplied pretty much on the level of nature, man lived largely on the instinctive level. The earliest efforts which the human race made to tide over critical situations were crude from the viewpoint of modern man. There had not yet been accrued a body of experience whereby finer methods of adjustment could be made, and more reasoned solutions to problems attained. It is a mistake therefore to try to read back into the behaviour of the primitive races those differentiations which are so common to our ways of thinking. Life for them was an undifferentiated continuum. The elements of religion, magic, art, science and morality were all there, but none of these had achieved a distinct existence.

The particular situations where religion and magic have most frequently functioned conjointly are the occasions of the ceremonial. The central occasions for the performance of the ceremonial are the critical times in the experiences of the group. They include such occurrences as births, initiations, marriages, deaths, wars, the seasons, diseases, pestilences and unusual events. The ceremonials are a reflection of the interests and activities of the group, and the objects of the cult represent the focal points in the practical interests and attention of the community. The ceremonials belong generically to folkways or group customs, being customs of a particular design and purpose, the character of which is social and pub-

lic, because they have to do with the larger life of the group. Inasmuch as they have grown up as responses to meet the felt needs of the group, they are times of intense emotional stress. The great needs included the securing of a sufficient supply of food, the perpetuation of the life of the group, the overcoming of enemies, the control of the weather, the avoidance of danger, the care of the dead and the like. These were matters of extreme importance. The very existence of the group was believed very often to be at stake in the proper and regular performance of the ritual. Consequently meticulous care was exercised as to the details to insure that nothing be omitted that was required for the welfare of the community. Some of the ceremonies were in the nature of dramatic reproductions of the nature processes and biological processes which it was felt desirable to make certain. It must be clear that with such aims and such means of securing the accomplishment of these aims there was certain to be an admixture of religion and magic. There was religion because one of the means employed was the worship and propitiation of deities who were deemed to be in control of the forces concerning the operation of which it was desirable to make certain. The worship of gods of agriculture, war, rain, fire, luck, fertility, death and other special departments of human interest are obviously connected with vital interests concerning which man has experienced a sense of need. But there was also the attempt to bring about the satisfaction of these needs by coercion of the forces believed to be involved in a mysterious way in their operation, that is to say by

magic. Through religion men sought to influence and propitiate powers whose favour was sought; through magic they tried to coerce them. And the ceremonial might involve either worship or coercion or both together. It might be religious or magical or magico-religious.

A good illustration of the association of magic with religion in the ceremonial is in the rain-making ceremony which is practised in South India. From Vedic times there has been a tradition that rain was due to the deity Varuna (the god of the heavens, an Indo-European deity, equivalent to the Avestan Ahura and Greek Ouranos). Consequently if the rain fails in the season when it is normally due, the people are in the habit of offering sacrifices to Varuna. These sacrifices are accompanied by the recitation of spells (mantras) which are believed to have magical power in coercing the deity to send the needed rain. In one type of Varuna *pūja* that is in use the Brahmans gather and offer oblations and prayers to him. The head priest stands waist-deep in the water of a river or pond (an artificial tank will not suffice), reads from the Veda and invokes Varuna under his various names. Following this ceremony certain people are feasted with all sweet dishes. This rite is repeated for forty-four consecutive days, that is, one *mandala*, after which rain may be expected. The God Indra has also been regarded as the god of the storm whose mighty weapon is the thunderbolt, and in time of drought great sacrifices are offered to him so that he will take up the battle against Vritra, the demon who keeps the water imprisoned in the thick clouds. In the Samaveda

there is an ancient hymn, the Sakvari, believed to have the power of Indra's thunderbolt when properly recited by a Brahman priest. On account of its great power he who would *exorcise* it was compelled to retire to the jungle and observe certain regulations such as touching water three times a day, eating black food, wearing black clothes and sitting continuously in the rain when it fell. When it thundered, he muttered: "The Great One is making a noise." When the lightning flashed, he said: "That is like the Sakvari song." He was prohibited from crossing a stream without touching the water; or going aboard a ship except to save a life, and then he had to touch water. "For in water lies the virtue of the Sakvari song." Obviously the black garments and black food were mimetic of the blackness of thunderclouds. The ceremonial as well as the preparations for it were in the nature of magical practices and formulas designed to give the Brahman priest power equal to the divine power of Indra. The Atharva Veda is a collection of similar magical charms which were used in the magico-religious ceremonials to achieve the desired ends.

But in South India there are other imitative rites that are practiced for the same purpose. The Kapus of the Telugu country have a practice which is depicted by Thurston and Rangachari. In describing Jokumara worship they say:

The figure represents Jokumara, who will bring down rain when insulted by people treading on him. Another kind of Jokumara worship also prevails in this district (Bellary). When rain fails, the Kapu females model a figure of a naked human being of small size.

They place this figure in an open mock palanquin, and go from door to door singing indecent songs and collecting alms. They continue this procession for three or four days, and then abandon the figure in a field adjacent to the village. The Malas then take possession of this abandoned Jokumara, and in their turn go about singing indecent songs and collecting alms for three or four days, and then throw it away in some jungle. This form of Jokumara worship is also believed to bring down plenty of rain. There is another simple superstition among Kapu females. When rain fails, the Kapu females catch hold of a frog, and tie it alive to a new winnowing fan made of bamboo. On this fan, leaving the frog visible, they spread a few margosa leaves, and go singing from door to door: "Lady frog must have her bath. O Rain-god, give a little water for her at least." This means that the drought has reached such a stage that there is not even a drop of water for the frogs. When the Kapu woman sings this song, the woman of the house brings a little water in a vessel, pours it over the frog which is left on the fan outside the door, and gives some alms. The woman of the house is satisfied that such an action will bring down rain in torrents.¹

Another rain-making ceremony called in Tamil *Malai Soru* is performed in the Coimbatore district. Certain persons go through the village, begging food from every household. Food is given in abundance, and is placed in a wide-mouthed vessel around which the begging group dances as they sing hymns in invocation of the rain-god. After much food has been secured, it is distributed among the poor, generally the "untouchables," and the rain-makers go to the

¹ *Castes and Tribes of Southern India*, III, pp. 244, 245.

temple continuing to sing and dance. In the Tinnevely district certain tree spirits are regarded as having the power to induce rain, make the crops to grow, the herds to increase and women to beget children, the obvious significance being the association of rain with fertility. In the same district certain stones are deemed to be able to procure rain if they are dipped in water, and mantras repeated over them. The members of one sect of the Todas, a primitive tribe in the Nilgiri hills, wet their sacred stones when rain is desired, and dry them before the fire if they wish to induce the sun to shine again.

In 1908 an elaborate rain-making ceremony was performed in the Sri Anjaneya temple at Vizianagram, to appease the wrath of the gods and cause the clouds to grant rain in plenty. This ceremony was called *Sahasra Ghatta Abhishekam* (literally, thousand pot anointing), and consisted in emptying one thousand new pots of ghee (clarified butter), curds, whey and milk over the head of the idol, while the head priest recited mantras. It took five hours to complete the ceremony, and certain of the people maintained a vow to eat only fruit and drink only water until their prayers were answered. Happily for the people the rain came on the fourth day, and of course it was attributed to the efficacy of the ceremony, and the fifth day was made a day of rejoicing and feasting in which the priest-magician was accorded due honours.

The inter-connection of religion and magic is demonstrable by scores of examples such as the one given. It comes out in other ways of attempting to control the weather. Efforts are made to compel the

sun to shine forth again when rain is excessive. When rain falls in excess, it is a common practice in South India to throw fire out of doors in the belief that fire possesses the property of preventing rain from falling. The worship of Surya the sun-god is also performed to induce him to shine again. Attempts are made to control the wind, in India prayers to Vayu being mingled with mantras, and sacrificial fires are built to stay a storm. In all of this we may observe the double effort to gain control—by gaining the good will of the deity, and by setting free natural forces through fulfilling the conditions necessary to their operation. And it is not until reflection is considerably advanced that there seems to arise any sense of incongruity between the two modes of operation.

Another typical illustration of ceremonials in which religious and magical elements are frequently fused is purificatory rites. Defilement may be the result of breaking a tabu. Tabu itself is a mixture of the two elements. It is largely associated with the idea of the sacred. But sacredness among primitive peoples is regarded as fraught with danger for any except those set apart to take care of such matters, or at times other than those prescribed for sacred matters. Consequently the idea of sanctity involving danger led to the idea of avoidance. The breaking of a tabu involved the transfer of magical force to the harm of the offender. Its *modus operandi* is such that it is regarded by most psychologists as negative magic. Defilement and purification were alike ceremonial matters, associated with the critical occasions in human life, both natural and social. Here again there

is an abundance of illustrative material in India today. The law books define the nature of impurities (*āsaucha*) and the methods to be followed in attaining purification (*suddhi*). The outstanding occasions of defilement are contact with the dead, contact with the smoke of a cremation, childbirth, menstruation, unchastity, contact with lowest castes, contact with the corpses of certain animals, partaking certain foods, contact with impure excretions, contact with certain cooking utensils, journeying across the ocean, and certain minor occasions such as sneezing, spitting, or having the hair cut. The methods of purification include the *prayaschittam* (partaking the five products of the cow), bathing in sacred rivers (especially the Ganges), sprinkling with water, rubbing with ashes, reciting mantras, offering prayers, performing religious ceremonies, fasting for a definite period, and investiture with the sacred thread. Pollution from contact with impure excretions may be removed by washing the part affected; pollution caused by spitting or sneezing by sipping water. Defilement of iron vessels by alcohol or by bodily excretions could be purified by fire; of stone or shell by burial in a pit for a period of seven days; of horn, ivory or bone by being scraped. But more serious pollutions demand more drastic treatment. The rules in regard to food are numerous and meticulous. Drinking intoxicating liquor was considered a mortal sin on a par with killing a Brahman, and offering it to a Brahman might bring on the offender capital punishment. A Brahman who had been defiled by contact with a Çudra could be purified by fasting twelve days, or by partaking

of the five products of the cow one day and fasting the next. Bathing in sacred rivers, particularly the Ganges, and the recitation of daily prayers are especially efficacious.

An account is given in the article on Kapus already quoted in the manual on *Castes and Tribes of Southern India*, which indicates the elaborateness with which purificatory rites are conducted today.

The purification ceremony for a house defiled by the unchastity of a maid or a widow is rather an elaborate affair. Formerly a Kolakkaran (hunter), a Tottiyar (scavenger), a priest of the village goddess, a Chakkilayan (leather-worker), and a Vavani Nayakkan (priest of a deity Bavani) had to be present. The Tottiyar is now sometimes dispensed with. The Kolakkaran and the Bavani Nayakkan burn some kamacchi grass, and put the ashes in three pots of water. The Tottiyar then worships Pillayar (Ganesa) in the form of some turmeric, and pours the turmeric into the water. The members of the polluted household then sit in a circle, while the Chakkilayan carries a black kid around the circle. He is pursued by the Bavani Nayakkan, and both together cut off the animal's head, and bury it. The guilty parties have then to tread on the place where the head is buried, and the turmeric and ash water is poured over them.*

The ideas of pollution and methods of illustration vary among different groups. In Cochin the matter of pollution is worked out in great detail. A Nayar may pollute a higher caste only by touch; Kammalans (i.e. masons, blacksmiths, carpenters and leather-workers), at a distance of twenty-four feet; toddy-

* *Castes and Tribes of Southern India*, III, p. 248.

drawers (Iluvans or Triyans), at thirty-six feet; Pularians or Cheruman cultivators, at forty-eight feet; and beef-eating Paraiyans, at sixty-four feet. A low-caste man on greeting a superior should stand still and hold his right hand over his mouth lest any particle of his breath or saliva, both of which may pollute, should come in contact with the superior. Pollution is applicable to the gods also. One informant relates that in his village the image of Ganesa is turned so as to face in the opposite direction from a woman experiencing a difficult confinement, and when the confinement is over it is purified by pouring water, placing flowers and burning camphor, after which it is restored to its original position. At the beginning of every Hindu ritual a purification rite (*punya vachana*, literally evocation of merit) is observed. The following prayer is repeated on *Avani Avittam* day, and is regarded as purifying from certain forms of defilement: "Base passion did it. Virulent anger did it. Passion was the doer—not I. Anger was the doer—not I. Passion was the instigator—not I. Anger was the abettor—not I. Thus I make amends for my wrongs."

The study of animism discloses another class of phenomena which indicate how closely religion and magic are associated in the behaviour of more primitive peoples. The animist believes that the entire environment is populated by spirits, which have this in common with men, that they are willful and vacillating, but have the advantage over them in that they are not confined by a body which limits their capability of movement and location. The typical events which gave rise to the belief in animism are illustra-

tions of the magical way of reasoning. The savage knew what sort of fortunes would visit his enemies and his friends if he were in control, and consequently he assumed when he observed such fortunes visited upon others or when he experienced them himself that they were the results of an alien will, more powerful to accomplish its desires than was he. It is a common occurrence to hear a South Indian villager whose crops are a failure, or whose household has suffered from the ravages of disease or death, exclaim "What have I done to bring upon me the anger of the deity?" The mental attitude which traces a necessary connection between unusual events and a will of the alien power is of a piece with magic. Indeed some scholars include will-magic in their classifications of magic. We may, however, carry the matter back to the origin of animistic ideas themselves which further illustrate the magical way of reasoning. It was the observation of such mysterious phenomena as death, shadows and dreams which induced the belief that there was a spirit apart from a body, and that this spirit was not subject to dissolution in the same sense as the body.

The perennial effort for control over environing forces of all kinds naturally included the world of spirits. Spirits were regarded as amenable to both the religious and magical types of control, both propitiation and coercion, sometimes separately and sometimes together. Spirits may be either benevolent or malevolent, but the tendency is to regard them as supernatural. Some of the more common forms which animistic beliefs and practices take are ancestor wor-

ship, beliefs in demon possession and rites of exorcism, beliefs in tree spirits, fire spirits, water spirits, mountain spirits and spirits in stones with their accompanying cults, beliefs in spirits as inhabiting heavenly bodies and powers of nature beliefs in fairies, goblins, gnomes, dryads and such tiny invisible folk, personification of abstract qualities such as luck or fury, belief in presiding genii over various departments of life, divinations, oracles and inspirations. The ramifications of animism are vast indeed; affecting, as must be apparent, so many human interests, and covering such a long stretch of human history. Indeed the influence of animism does not stop with our primitive ancestors, but pervades the social life of the great majority of human races today.

It would be possible to find many examples from the sphere of animism to illustrate the association between things religious and things magical. One field which is particularly fruitful in suggestiveness is that of beliefs and rites connected with demon possession and exorcism. The belief in the existence of malevolent spirits arises from a magical way of reasoning. The savage peoples the world about him with a myriad of fairies, ghosts and demons that haunt him and hover about him. The mishaps that he suffers he credits to the witchcraft of an enemy, or to the anger or caprice of a demon. Disease, famine, accidents, poverty, childless parenthood, abortions, visitations of fire, storm or earthquake, death or any other calamity are all alike interpreted in this way. The evidence that such beliefs are associated with magical ways of thinking is greatly strengthened by the fact

that the methods employed for getting rid of them are so largely magical. The calamities themselves are viewed as the result of black magic, and the way to overcome them often includes counter magic. Small-pox, cholera and plague are regularly regarded by the people of South India as due to the machinations of certain deities who are angry. When such pestilences break out, the community arranges for special propitiatory sacrifices and rites to stay the deity's anger. In Travancore the worship of demons is widely practised. A case is recorded of a man worshipping the image of a slave whom he had murdered in order to appease the spirit of the victim. Various types of amulets, including rolls of palm leaves and copper plates, worn about the neck are calculated to keep demons at a distance. Gardens and fields of grain are protected from the evil eye by hanging up earthen pots with spots of lime daubed on them. Houses are believed to be haunted by the spirits of people who have died there, and various ceremonies are periodically performed to prevent the spirits from harming the inhabitants. Illnesses are believed to be the work of sorcery. A case was related to me of a woman in Vizagapatnam who was suffering from persistent fever and pains which travelled from one part of the body to another with no apparent reason. It was at length discovered that her son-in-law had been exercising black art by preparing pictures to represent her which he used to abuse by dislocating the limbs and otherwise crippling the body, meanwhile repeating mantras, fasting, and invoking his patron deity at dead of night.

The manner of driving out devils is also magico-

religious. There are certain men in Southern India who are renowned for their ability in such matters. This ability is believed to consist in an extraordinary control of magical power due to holiness, austerities or initiation into the particular cult by an older guru. Magicians who are about to exorcise demons will sit down with the patient in front of them. The magician makes certain geometrical figures on the floor or ground between himself and his patient, using powder of turmeric, charcoal, rice, lime, and the leaves of certain trees for drawing the designs. Some enchanted water, into which turmeric, lime and powdered rice are mixed is prepared; in some cases the patient is sprinkled with this water, and at the same time asked to drink a small portion of it. On some occasions the magician ties a rope by a big thread in a particular way, muttering incantations while doing so, or he may drive nails in a block of wood, which is sometimes shaped into an image of a human being. The knots tied in the rope and the nails driven in the wood correspond to the number of spirits supposed to possess the person, and they are supposed to tie up or pierce the demons. On occasions the patient is beaten with the object of driving out the evil spirit. Sometimes the exorcised spirit is nailed to a tree or cast into a river to prevent its return. Many times the magician refuses to begin his work until suitable offerings are made to the deity whom he invokes and by whose aid the devils are driven out. Different deities or temples are renowned for the exorcism of different kinds of evil spirits.

One instance which has come under my observation

will illustrate the typical manner in which such rites are performed. A young Brahman lad of twelve or thirteen years was taken with strange fits of illness in which he would lose consciousness and his chest would heave with heavy breathing. The trouble was diagnosed as demon possession due to the family inhabiting a house which had been built on a site said to have been used as a burial ground for children fifty years before, and consequently haunted by evil spirits. A holy man with a reputation as an exorcist was summoned, after medical help had failed. This man prepared some holy ashes with which he drew a geometrical figure in which he wrote some magic letters, at the same time chanting mantras. Then he called on the patient to describe what he saw, and the lad described a vision containing a tank with a solitary red lotus flower, a charmingly beautiful woman, a giant and a lion. The ugly giant appeared to give chase to the boy and the magician bade him ask the woman's help. Thereupon the lion attacked the giant, but the giant soon conquered the lion, and came on towards the boy. Then the woman attacked the giant with a three-pronged spear and completely vanquished him, till he begged for mercy and promised to depart. Then the woman bade the boy always call for her help, calling her by name, promising that she would come to his assistance if he were in trouble. When the boy awoke from his trance he described the woman, the lion, the giant, and the tank, but knew nothing of the struggle which had taken place. Obviously the giant represented the evil spirit which had been the cause of his troubles for about a year.

And from the description of the woman, the boy's friends recognized her as the goddess *Prathyangiras* as depicted in the sacred books. After the exorcism the magician initiated the boy into the cult of the goddess, and he says that she appears to him daily and saves him from further demoniacal annoyances.

The phenomena associated with fetishism afford further illustration of the inter-relationship between religion and magic in primitive society. Fetishism has been defined as the worship of inanimate objects such as stocks and stones which are material and tangible, and are worshipped in their own right. In that sense fetishism may be contrasted with idolatry where the object is regarded as a symbol, and is therefore not ordinarily worshipped on its own account. The word "fetish" is derived through the Portuguese *feitico* from the passive form *factivus* of the Latin verb *facere*, to do, and therefore etymologically carries the meaning of a work of art or something artificial. Some scholars¹ are of opinion that the word was first applied to such artificial or handmade objects as idols, images, and amulets, and that later it came to include all objects deemed to possess magical potency or bewitched. The Portuguese first coined the word in the fifteenth century when their explorers came in contact with peculiar forms now associated with fetishism in Africa. But a closer examination of the phenomena makes it very doubtful whether any definite line of demarcation can be drawn between fetishism and idolatry on the basis that the latter embodies symbolism whereas the former does not, for fetishes

¹ A. C. Haddon: *Magic and Fetishism* (London, Constable, 1906).

are also sometimes symbolic, and idols sometimes function as fetishes. Not only so, but fetishes are sometimes regarded as the embodiment of spirits, and thus are on occasions animistically regarded and employed. At other times their function is more distinctively magical, the abode of a mysterious power capable of inducing certain results. We can witness the transition stage between fetishism and idolatry in its crudest form among some of the tribes of lowest culture in India, e.g., the Yanadis of the Madras Presidency worship stones, bricks, pieces of wood, pots of water, etc., in which leaves of the sacred nim tree have been placed. They also perform puja before rude pictures scratched on the walls of their mud houses, and before clay fetishes which are formed by simply compressing a handful of clay into some shape.

It is not difficult to appreciate the way in which primitive man would come to associate power with certain peculiar objects. Such objects included stones of a peculiar shape, e.g., those in India, in the form of the *lingam*, the symbol of the male generative organ. Stones that have been oddly perforated, either naturally or artificially, are also used; thus the *sala-grama* is another stone regarded in India as charged with therapeutic properties. Meteoric stones or rocks are likewise employed as fetishes, one which I saw embedded in the sand at a village near the sea in the Vizagapatam district being so regarded. Another type to be found in India is the footprint, in particular that of Vishnu, and hence known as Vishnu-pada, and regarded as possessing wonder-working

potency. Trees, plants and leaves are another group of fetishes in common use. Among the more common in use in South India are the fig (pipal), the margosa (nim), the sweet basil (tulasi), the mango, the banyan and the betel-nut (areca) palm. These trees are regarded as the embodiments of magical potency, and are used in charms and cures for a great variety of things. If the afterbirth of a cow be buried beneath a banyan tree, the cow ought to give more milk because the sap of that tree is milky. Darbha grass is revered as a portion of Vishnu himself, and regarded as particularly virtuous for purificatory purposes. "Nothing on earth can equal the virtues of the tulasi," say the Brahmans in their prayers. When one of them is dying, some of the plants are placed near him on a pedestal, leaves placed on his eyes, ears, face and chest, and his body is sprinkled with a tulasi branch dipped in water. Forgiveness of sins can be obtained by touching water in which the salagrama has been washed, and the Atharva Veda declares that a Brahman house without one is as impure as a cemetery. Beliefs and practices such as these are evidence of the very complex character of fetish objects, a character that is quite obviously both religious and magical. The essential idea seems to be that tangible objects may be the abodes of mysterious, if not spiritual powers. The power is believed in many cases to be due to the spirit or deity which has transferred potency to it, and hence its significance is religious. At the same time the possession and use of the object is regarded as sufficient to bring about the desired end

because the potency is resident in the object and under the control of the possessor so that its significance is likewise magical.

The treatment of the fetish is a combination of worship, coaxing and coercion. It is the object of prayer and of sacrifice, and is talked to, as though possessed of consciousness. It is, among Africans, petted when its help is sought, and beaten or otherwise illtreated when it has not done what was required. Some of them will hide the fetish when they are about to do something of which they are ashamed. It is an object of fear, and a power of protection, and may be left in charge of a shop, because no man will dare to steal with the fetish looking on. It is difficult to know where fetishism ends and nature-worship or polytheism begins, when an object ceases to be a fetish and becomes an idol or a deity. The truth is there is no definite line of differentiation. The origin of fetishism is obviously to be traced to lower grades of culture and religion. It includes conceptions that are thoroughly magical. Yet the use of material objects in worship, whether as symbols or utensils, a practice of which fetishism is one of the most primitive forms, persists throughout the history of religions even into the more cultured forms, and seems to be so integral a part of religious rites that one cannot readily conceive of its completely passing away as long as man is a sentient being.

In totemism we find further material which demonstrates the inter-penetration of religion and magic in the primitive stages of culture. Totemism has been defined by J. G. Frazer as "an intimate relation which

is supposed to exist between a group of kindred people on one side and a species of natural or artificial objects on the other side, which objects are called the totems of the human group.”⁴ It differs from fetishism in which the association is established between persons and specific objects rather than one definite class of objects. In addition to that there is a much more intimate relation between a group and its totem than between a group and one of its fetishes. In the former case the object is an integral part of the group itself and hence operates in the organization of the group. The word “totem” emanates from the language of the Chippewa or Ojibway Indians of North America but the phenomenon is one that is widespread, being found not only in North America but in Australia, Indonesia, India, Japan, and perhaps Egypt.

Totem objects are in the vast majority of cases animals or plants, frequently the staple objects of food for the clan. The practices which are in vogue among different peoples vary so widely that it is scarcely possible to offer any generalizations as to the typical totemic features. Yet there are some features which are characteristic. One is that the life of the group is regarded as intimately bound up with the life of the species so that the life of the clan is dependent on the welfare of the totem animal or plant. This is a perfectly natural development when we consider that the totem was the staple edible object. If that particular animal or plant were to become extinct, it would involve the extinction of the group which

⁴ *Totemism and Exogamy*, IV, pp. 3-4.

depended upon it. Examples of totem food objects are available in abundance: the totem of the Todas of South India is the buffalo; of the Oraons of Chota Nagpur the monkey; that of the Ainus of Japan the bear; of the Hopi Indians of North America maize; of the Arabs the date palm; of the Babylonians of the Persian Gulf a fish; of the Warramunga of Central Australia the cockatoo; of the Aruntas of Australia the witchetty grub; of the islanders of the Torres Straits the turtle; of British Columbia Indians the salmon. The list might be made very much larger. The totem was an indication of ancestry, as well as a basis for tribal organization. In some instances, as e.g., in Western Australia, the life of each individual of the clan was regarded as bound up with some one animal or plant of the species, but, since there was no means of knowing which one, great care was exercised in behaving properly towards the whole species for fear of offence to the particular one concerned.

Another characteristic of totemic society is exogamy. It is the rule prevalent very largely among primitive tribes that a man must find his wife from the women of another totem tribe. Thus a man of the Crow tribe could not marry a woman of his own tribe, but he might get a wife from among the Bats. Then their children would take the totem of the mother. Some scholars thought that exogamy was a constant factor of totemism, but more extended investigations have disclosed exceptions. There are tribes in Australia which are totemic but not exogamous. A still more prevalent practice is that of calling the individual by the name of the totem, and in some instances crests

or insignia which symbolize the totem are tattooed on the body or carved or painted on poles, houses and weapons, the object being to strengthen the bond of relationship.

The religious significance of totemism is manifest in the multiplicity of ceremonials which are performed. We cannot describe totemism as distinctively a religion; for a totem is not considered as a deity, nor is it an object of worship. The deliberate worship of animals and plants seems to be a different type of animism. Animistic ideas arose before the age of totemism but are to be found within that period also. Some totemic people believe that a man has more than one soul, one of which finds a receptacle in his totem. The Botaks of Sumatra hold that a man's external soul inhabits the totem animal and consequently they will not eat the totem animal, because the soul must have this place to migrate to or else he will die. Among some tribes e.g., the Wonghibons of New South Wales, the initiation ceremony is one whereby boys are made mimetically to undergo death and resurrection in the belief that thereby their souls are given an opportunity of taking up their residence in the totem. There are many other rites which are practised which, while they may not be said to be definitely animistic, illustrate the integral relationship between the totem and the group, a confederacy never neglected in religion any more than in any other social function. The Todas of the Nilgiri hills always slay buffaloes on the occasion of the funeral ceremonies, and bring the corpse into contact with the dead animal while the mourning proceeds.

Birth, childhood and marriage ceremonies all include some features in which the buffaloes play a part. The same is true of the ceremonies of the Ainus of Japan with meticulous regard for the bear. The sacrifice is another occasion which furnishes a striking example of the religious significance of totemism, great care being taken in the selection of the animal to be sacrificed, frequently apologies being proffered to it before slaying it, the object being to insure a plentiful supply of the totem animal or plant on which the life of the group depends. Among the Todas a buffalo calf is sacrificed and eaten, though the Todas endeavour to prevent others from knowing it, the purpose being that the animals may go to the next world in the service of the dead, or that they may insure the increase of the buffaloes, or the abundance of the crops. With them the closeness of the bond is illustrated the more clearly by the fact that the chief dairyman is also the priest who conducts the ceremonial.

Totemism is as truly magical as it is religious. The elaborate ceremonies which are so much a part of the system, and the design of which is the multiplication of the animals or plants, are suffused with magical ideas. These ceremonies are planned and performed with great care lest by departing from the prescribed forms the efficacy of the rites should be endangered. The close association between the conceptions of form and efficacy suggests a mechanical view which is essentially magical. The part given to the totem in ceremonies for purification indicates an opinion that the totem has a power in itself to accomplish the

end sought. The association of the totem again with the priest in prayers shows that the prayers are regarded more in the nature of charms than of supplications. The sacrifices of the Toda show no indication of the idea of propitiating a deity, but rather that of bringing about the desired end by the operation of a mysterious force resident in the sacrifice of the sacred animal. Though the sacrifice be offered to a deity, yet the hand of the deity is forced to grant the request for the sake of the buffalo that has been sacrificed.

Again the magical character of totemism is illustratable from the abundance of tabus. Certain Australian tribes shrink from eating the flesh of the totem animal because of the fear of the consequences. Others have more limited tabus which are attached to certain times or certain portions of the animal. The drinking of the milk of the sacred buffalo is tabu for the widow or widower among the Todas for a certain period, and the ritual of the dairy appears to be designed for the removal of tabus. A violation of the principle of exogamy is one of the worst types of tabu-breaking. It is regarded as a form of incest. The Todas, as an example, are divided into two septs, and if a man has sexual intercourse with a woman of the same sept it is regarded as incest. And the chief function of the ceremonials, as already indicated, is that of removing the uncleanness consequent on tabu-breaking. In describing the tabus associated with the totemism of the Oraons of Chota Nagpur, Sarath Chandra Roy says: "As a general rule, an Oraon must abstain from eating or otherwise using, domesticating, killing,

destroying, maiming, hurting or injuring the animal or plant or other object that forms his totem; nor must he use anything made of it or obtained from it; and, when practicable, he will prevent others from doing so in his presence. In the case of tree-totems, the men of the clan will neither go under the shade of the tree, nor cut nor burn its wood, nor use its produce in any shape." ^a

That brings us to a consideration of the whole matter of tabu which offers one of the most interesting cases of the mingling of ideas and practices, religious and magical. The origin of the word "tabu" is to be traced in the Polynesian language to an adjective (*ta*, "mark" + *pu*, "exceedingly") which means literally "marked off." The reason that a thing is so marked off is that it is regarded as possessed of a mysterious power which makes it dangerous. That power was called *mana*, and both on its positive side and in its negative implications it was magico-religious. It is unnecessary to refer here to cognate and parallel words in other languages to illustrate the widespread character of the notion. The marking off of the object was connected with the sanctity of its character which on the one hand must be preserved and on the other hand was a source of danger to the person who recklessly paid no heed to its special character. Tabu thus developed a meaning which is largely negative though it reposes on a positive basis. It was something marked off to be kept sacred; and therefore it was dangerous, on which account it was to be avoided. The idea readily spread so as to include

^a *The Oraons of Chota Nagpur*, p. 330.

not only things, but places and persons, words and acts, and the dangerousness and impurity came to be regarded as infectious. All of this is so very similar to magic that many scholars define it as "negative magic." The principle of positive magic is doing something that something else may be brought to pass; negative magic or tabu is the avoidance of some action to prevent some other thing from happening. Magic is designed to produce or induce certain effects; tabu to prevent or hinder certain effects. Both magic and tabu are believed to operate through a mysterious power, and both of them make use of a thoroughly mechanical technique. The mental attitudes in both cases are essentially the same, and the methods of control are alike. In both cases it is coercion and not conciliation or propitiation, the only difference being that the one operates positively and the other negatively.

There is a great number of life interests that are touched by tabu, but some of them rather more frequently than others. Certain occasions are frequently and not unnaturally for primitive people associated with ideas of uncleanness. Contact with the dead and women during the periods of menstruation and child-birth are occasions of impurity in the thoughts of many savages. Another class of tabus is more obviously connected with the idea of sanctity, such as the persons of priests and kings. The idea appears to prevail in all such cases that there is a mysterious power attached to the event, place or person which is capable of causing trouble if it be neglected or ignored. Moreover the violation of the sacred or mysterious

character automatically brings trouble upon the head of the offender. In a great number of cases the reaction is quite mechanically conceived though there are also instances where it is associated with a spirit or a deity. But in the latter case there is very little idea of personal reaction. It is quite as mechanically determined as in the cases where the mysterious power is conceived as impersonal. Thus though some tabus are definitely associated with things and persons which are religious, the mode of their operation is distinctly magical. In other cases, of course, the tabus arise before any distinction between religion and magic has been developed, and indicate that general complexity which marks the period previous to the age of differentiation.

Tabu is prevalent on a very large scale in South India today. In the villages it is very often observed most scrupulously, and the man who disregards it is treated as unclean and very often boycotted by the entire community. These tabus take a great variety of forms, like positive magic touching practically all the interests of life. There are tabued times and seasons, words, actions, events, objects and persons. There are a great many tabus attached to the circumstances under which a man may start on a journey or commence a piece of work. If hunters are starting out for game and see a column of ants crossing the path they accept it as a warning that to proceed would be fruitless. If one were to start on a journey and encounter a widow, a barren woman, a deformed person, ashes, a crow, a broom, an ass, a cat, etc., he would interpret that journey as tabu. One young man

described to me how he came home to find his father ill, whereupon he started for a physician. On starting out a cat swiftly crossed his pathway; as he entered the doctor's house, a widow came out; going for a second doctor, another cat crossed his path; again the doctor gave him the medicine at an unlucky time of the day (*rahu kalam*), and his father died. A student informed me that he had been compelled to begin to write certain public examinations during *rahu kalam*, and failed. A contractor declined to begin some repairs on my bungalow at a certain time on the pretext that at the time the workmen would begin on that particular day it would be *rahu kalam*; but I was able to consult the *panchangam* (calendar, including lucky and unlucky times) and show him that particular time was lucky, and accordingly he began the work at that time. The following is the table of inauspicious times (*rahu kalam*) when it is tabu to begin any work:

Sunday, 4:30 to 6 P.M.

Monday, 7:30 to 9 A.M.

Tuesday, 3 to 4:30 P.M.

Wednesday, 12 noon to 1:30 P.M.

Thursday, 1:30 to 3 P.M.

Friday, 10:30 A.M. to 12 noon

Saturday, 9 to 10:30 A.M.

In addition to these regularly recurring tabued times, there are special occasions which have their particular tabus. One of them is the occasion of an eclipse which is considered to be very dangerous. It is a time when pregnant women are not permitted to

go out of the house, and indeed they are kept in a room the doors and windows of which are all closed till the eclipse is over. Many Hindus will neither eat nor drink during an eclipse, even refraining from allowing an infant to drink its mother's milk, in the belief that during the eclipse everything is poisonous. An eclipse is believed to be the swallowing of the sun or moon (themselves deities) by the serpent deity, Rahu, a serpent with a head but no body, so that the sun or moon escapes at the other side. If a pregnant woman exposes herself at such a time it is believed that her child will be deformed as the result of the action of Rahu, himself deformed.

India has also tabus associated with persons or parts of persons. Among the more common are widows, barren women, non-caste persons and deformed persons. It is exceedingly inauspicious to have any of these persons cross one's pathway when starting on a journey, and may be taken as an indication that the journey will be made in vain. The widow is of course frequently held responsible for her husband's death, and that even itself is an indication of the danger attached to her person. The sterility of a barren woman may be contagious, and hence she should not be allowed to walk through a field where a good harvest is desired. Even a pregnant woman is sometimes tabu in a garden or field for fear she will take into her own body the fertility which the garden or crop ought to enjoy. A person who does not fall within the four great caste divisions is also tabu among the orthodox. He may not draw water from the village well, attend the same school with caste people, enter the temple,

or walk in certain streets. Even his shadow may be a source of pollution should it fall on a high-caste person. Should his shadow so pollute another, that person must undergo a lustration ceremony. Should he pollute a well, that would have to be purified. All of these tabus that have fallen on these unfortunate individuals are interpreted as the outcome of the operation of *karma* and *samsara*, the sins of a previous life now come to fruition. Thus the tabus are religico-magically conceived.

There are other tabus which are associated with the various parts of the body and with physiological functions. The left hand, which is used in ablutions after defecation, is considered unclean and therefore its use for receiving a gift, greeting a friend, and so forth is tabu. Even the vision of some people is considered dangerous, and many believe in the mysterious potency of the evil eye. Tabus and other magical beliefs are also associated with sneezing, yawning, itching, hysteria, epilepsy and shadows. If a person sneezes once at the beginning of an undertaking, it presages disaster; twice is auspicious. Sometimes children who do not realize the seriousness with which this belief is held will deliberately play pranks by sneezing just as a superstitious person is about to start out, for the fun of seeing him turn back angrily. A medical compounder was once assisting a doctor extract teeth when he rather clumsily broke one, but the blame was all placed on the head of an unlucky man who chanced to sneeze just as the tooth was being extracted. The fingers are snapped at the time of yawning to prevent the entrance of evil spirits into the body through the

opening of the mouth. Even the names of persons, as well as of certain objects, are tabu for certain others. A wife should not mention the name of her husband or the husband that of his wife, for fear some disaster will fall on the individual named. This tabu probably originated in the primitive belief that the name is a vital part of the person, and the fear lest its mention might lead to the exercise of sorcery on the part of others. The correct names of certain objects should not be applied to them, particularly after night falls, as it may portend evil. A snake ought to be called a rope, and salt should be called sugar.

It would be possible to extend almost interminably the list of beliefs and practices involving tabu. But sufficient mention of them has been made for the purpose of illustrating the inter-relationship of the sacred and the mechanical, the religious and the magical. In every case there is a basic notion of a mysterious power to which attaches an element of danger. This *mana* or power is something like a mother-substance out of which either religion or magic may arise according to whether it is conceived as operating spiritually and personally or mechanically. The ideas of *mana* and *tabu* are sometimes used in a sacred sense, but sometimes otherwise. Though the words are both Polynesian, the conceptions are widespread, and no conceptions in all the beliefs and customs of primitive man illustrate more conspicuously the fact that religion and magic have sprung from a common substratum, where differentiation is impossible.

Religion and magic are sometimes found in close association with each other in special persons who

embody the activating forces out of which both have sprung. There are three classes of special religious persons with whom we meet in the history of religions: the shaman, the priest and the prophet, and in all of these we can discern at times functions that are alike religious and magical. In the earlier stages, religion is very largely social not only in character but in manner of function. The group acts as a group when it is religious as it acts in any other connection. Personality, as we know it, is the product of social life, and sprang out of communal life. As life developed in complexity, it was no longer possible for the whole group to act as a unity in everything. A division of labour was inevitable, and one of the results was that upon certain individuals fell the responsibility of religious leadership. Religion was the creator, not the creation, of priests. The earliest form of religious person was the shaman variously known as witch-doctor, sorcerer, medicine man or magician. In South India the different vernaculars have a word compounded of *mantra*, the spoken charm, and a pronoun in the third person as, e.g., in Telugu *mantravadu*, "he of the mantras." This individual is the shaman who is believed to have a mysterious power that enables him to learn and disclose matters hidden to others and influence occult powers including deities, and this power which he possesses is invariably held to be the gift of a particular deity. The shaman attains his position for a variety of reasons. One is the ability of going into a trance, in which state he is presumed to be possessed of a mysterious force whereby he reveals hidden matters either past or future. A second reason is the

chance success which he obtains in doing what the people want done or in telling them what they want to be told. A third reason for his obtaining acknowledgment is a certain shrewdness that is born of experience. A shaman is a specialist in those religico-magical practices that play such a large part in primitive society such as detecting culprits, exorcising evil spirits, preparing amulets and charms, predicting the future, repeating mystical charms, working revenge on enemies, communing with the dead, etc. There are some such shamans still practising their art in Malabar, though their number is fast diminishing.

These men are given the Malayalam name "Odiyan," which literally means "he who lames" or "he who strikes one lame," a name having quite obvious reference to the black art which they are said to practise. These Odiyans belong to the non-caste people of Malabar. When one of them is about to practice his nefarious art, he is said to prepare some pills out of the entrails of a new-born calf or of a disembowelled pregnant woman, and after taking these pills he begins to repeat charms (mantras), at the same time having the power of changing himself into one of the lower animals, dog, cat, jackal, etc. Then in animal form he is said to roam about at dead of night, catching and maltreating his victim. Another type of shaman in Malabar is the mantravadi, who is associated with the worship of the goddess Bhagavathi. The duties of these men are very definitely admixtures of the religious and the magical, as they are devotees of the goddess and get their living from the part they perform in the religious rites. At the time of festivals they

stand before the idol and pray, then jumping into the air they run several times around the temple, brandishing a sword and howling at the top of the voice, whereupon they are presumed to be under the direct inspiration of the deity and able to speak as oracles. The people believe that the goddess expresses approbation or disapprobation of the conduct of the festival. If the goddess is displeased, the oracle waves his sword and strikes his hand with it, splashing blood over the body, at the same time flinging out curses till the bystanders shiver with terror and awe; if she approves he speaks words of comfort and blessing. These men profess to feel very little pain as a result of their self-torture, undoubtedly the emotional stress shifting their attention to other matters of keener interest. Somewhat similar are the fire-walking ceremonies so common in South India.

These shamanistic practices are frequently the special sphere of certain castes. The Kaniyans and Velans of Malabar are especially reputed for the knowledge of the magical art. The word *Kaniyan* is derived from the Sanskrit *Ganika* meaning an astrologer. Tradition associates the Kaniyans of Malabar with the Valluvans of the Tamil country who are the priests and astrologers of the Paraiyans and Pallans of that area. These men are consulted for advice regarding the likelihood of success or failure in all manner of undertaking, domestic and social: the causes of calamities, the likelihood of an expected child being a son or a daughter, the best way to get rid of illness, the auspicious time for sowing and reaping, the proper time to begin a journey, the advisability of buying or

selling property or making loans, the naming of children, initiation or investiture (*upanayanam*), marriage ceremonies, and exorcism of demons. Two things seem to be necessary for him to work, viz., a calendar (*panchangam*) and a bag of cowries. When anyone desires his advice, he sits facing the sun and begins by reciting charms (mantras) and some verses in praise of his patron deity, Subramanya, then places some of the cowries in a certain position on a geometrical diagram traced with chalk on the floor. These cowries are said to symbolize Ganesa, the obstacle-removing God, Surya, the sun, the planet Jupiter and Saraswati, the goddess of speech, and his guru or teacher. These cowries are further arranged in the compartments of the design whereupon the Kaniyan makes his predictions and concludes by worshipping the deified cowries. The Kaniyans are also skilled in the art of exorcism and when invited to drive out an evil spirit they usually go in a group to the house of the victim, masquerading as Ghandharva, Yakshi, Bhairava and other devils. To the accompaniment of music they rush in the direction of the afflicted person with the motive of frightening the devil away. Another function which these men fulfil is the making of amulets (*yantram*) which are considered valuable for a variety of ends, including counter magic against sorcery, relieving illness, curing barrenness, taming wild horses, preventing demon possession and increasing knowledge. Many of the Kaniyans know a good deal about the medicinal uses of herbs and are clever medicine men. Would it not be difficult to find a better illustration of the combination of religion and magic than in these Malabar people?

Their method of working and their devices are almost exclusively magical. Moreover with certain of their performances tabus are inflicted for specific periods as, e.g., in their attempt to cure the sterility of a barren woman; yet they associate all that they do with a deity, Bhagavati, Subramnya, Ganesa or some other, and in exorcism with demons. And their pronouncements are received by the people with due reverence as oracles of God Himself. Some of these pronouncements come in the form of instructions as to the sacrifices and offerings required to propitiate or preserve the good will of the deity. But the people believe even in the most thoroughly magical rites and in large measure they believe that they are accomplishing what they themselves do by the superhuman assistance of the deity with whom they are on intimate terms.

The shaman belongs rather to the period of magic. When magic wanes and religion waxes stronger the shaman recedes before the priest or the prophet. But such a transition is never accomplished suddenly. It may take centuries for a shaman to pass and the prophet or priest to take his place. And during the transition period we witness religion and magic in coalition with the religious element gradually gaining in ascendancy and the magical becoming progressively subordinate. Indeed it is a question as to whether the work of the priest has in any religion ever become quite free from the magical element. Certainly it is not difficult to obtain evidence from any of the living religions for the admixture of magical alloy with the gold of religion. What then is the difference between the shaman and the priest? The shaman is regarded

as having power which he can exercise directly, even over the gods, by means of the spell; the priest recognizes that any power which he exercises is a gift of the deity, to be obtained by conciliation or prayer. There is usually a rather long period between the spell as spell and prayer as prayer, a period between the magical rite to coerce the gods, and the religious sacrifice to propitiate the gods, a period in which the sacrifice is regarded as possessing a value that is magico-religious, semi-coercive and semi-conciliative.

But shamanism does not furnish the only basis for priestcraft. There are communities in which shamanism has never been practised as far as we know, and where the priesthood has grown up from other causes. In some instances the ceremonial has become exceedingly complex, and yet its cogency interpreted quite magically, in which cases efficacy depended upon the precision with which details are cared for. Here it was found to be necessary to set apart certain men whose special duties would be the care of the ritual, and such men frequently strengthened their claims by appealing to the people's fear and by mentioning that they possessed superior knowledge in regard to the will of the gods. The division of labour consequent on the developing complexity of society involved a recognition of the class of priests who should conduct the religious rites for the group. It will be readily seen that such a setting apart of a special class of men for the oversight and conduct of the ceremonials of the group inevitably tended towards a formalizing of the ceremonial. And may we not say that formalism always has a tendency towards the magical, though the

form may have arisen to meet a religious need? If the conduct of the ceremonial be in the hands of a special few, then a tendency arises to regard the ceremonial as of value for its own sake, rather than as the group's expressed desire to be on good terms with the deity. Yet it must be acknowledged that, except for a few people of a particularly reflective turn of mind, forms are necessary. They give opportunity for activistic and æsthetic phases of the religious consciousness, and serve an important function in that way. The religious problem is to guard against a shift of attitude and emphasis away from the social and spiritual towards the mechanical, away from the form as means towards the form as end in itself. This is the danger which needs to be avoided when a special priestly class is dedicated to the service of religion in the name of the group. On the other hand the increasing complexity of social life argues much for the need of certain persons who will undertake the supervision at least of the widening range of religious functions. There are temple duties such as receiving and making offerings, sacrificing, burning lights and incense, making prayers, conducting worship, guarding sacred utensils and leading public actions; there are legal duties growing out of disputes of certain kinds; there are the functions of teaching and advising; there are the making and the preserving of records concerned with the traditions and myths; there are purificatory, birth, initiatory, marriage, and death ceremonies to conduct; there are oracular duties to perform; there is the public music; and sometimes there is the work of healing the sick. It is not surprising that, with such a variety

of duties to be performed, it should be felt desirable to designate certain men to them, both for the sake of economy and efficiency. It seems to be an easy step to take to regard the office of priest as giving its holder a secret and irresistible power and to credit him with powers magical and miraculous.

Such a growth in the power of the priest may be observed in India. The literature of the Yayur and Atharva Vedas and the Brahmanas in particular indicate a strong tendency to develop the magical elements. Sacrifice and offerings developed into a kind of bartering with the gods on the principle of *do ut des*. The sacrifice was a mechanical art operating with its own power of coercion, and the desired result was sure to follow. The sacrificial hymn was called *brahman*, and this word developed in meaning till it came to signify the magico-religious power believed to be exercised by that hymn, and then it was interpreted as a cosmic power having these particular manifestations. And the priest who possessed knowledge of the *brahman* and the *mantra* increased in influence and power in the community until his power was regarded as magico-divine. An ancient Sanskrit legend says: "The universe is subject to the gods, the gods are subject to the sacrificial charms (mantras); and the mantras are in the hands of the Brahmanas. Hence the Brahmanas are the real gods though they live on this earth." The Catapatha Brahmana gives voice to the same belief: "Verily there are two kinds of gods; for, indeed, the gods are the gods; and the Brahmanas who have studied and teach sacred lore are the human gods. The sacrifice of these is divided into two kinds; oblations con-

stitute the sacrifice to the gods; and the gifts to the priests to the human gods, the Brahmins, who have studied and teach sacred lore." * A story † is told of an illustrious sage who was impaled after being falsely accused of theft but who continued in the practice of austerities for many years upon his stake, even without food. He could remember only one sin, that in his childhood he had pierced a tiny fly with a blade of grass. The holy man was much incensed at the extremity of his punishment. He was cursed to be born again as a Çudra, and such was the power of the Brahmin's curse that even the divinest power had to submit to it.

It is not only the priestly caste but also the non-Brahmin-caste priests who are believed to possess magico-religious powers. They are usually associated with a particular deity or temple, and conduct the worship (*puja*) for those who are followers of the deity. But their functions also include the conduct of innumerable magical ceremonies such as rain-making, lustrations, exorcism, birth ceremonies, initiation ceremonies (*upanayanam*), marriages, death ceremonies, detecting culprits, building ceremonies, and so forth. In many instances the priests associated with minor deities and village temples are very difficult to differentiate from the shaman, so thoroughly magical are their ways of working. The one element which seems to merit their designation as priests is their association with a deity.

A third type of special religious person is the

* II, 2, pp. 2, 6.

† Recounted by Carpenter in *Theism in Mediæval India*, p. 150.

prophet. In primitive religions we think of the prophet as the person who is ecstatically possessed of the god as a result of which possession he is considered to speak on behalf of the deity. He is closely associated with the seer who apprehended the divine will by means of trances, visions, dreams and auguries. The distinction between priest and prophet is that the former is concerned more with the ritual and the latter with physical matters. With the introduction of cultural elements, there arose the concept of inspiration, the prophet being regarded as one inspired or possessed by the divine spirit. The Hebrew religion and Islam furnish examples of prophecy in the more developed stage where the inspired man uttered messages of political, moral and social righteousness as well as of religious import. The forerunner of the prophet was thus often the shaman or *mantravadu*, who worked himself into a state of ecstasy by various means—shouting, leaping, running, brandishing swords, dancing, drinking intoxicants, and so on. And when the ecstatic state came on, his mutterings were regarded as the word from the gods. We are accustomed to think of prophecy as a distinctive religious phenomenon, but we need to remind ourselves that its origin has been out of functions that were largely magico-religious.

In India there is another type of special religious person in whom we may find further illustration of religion and magic in association, viz., the *sadhu* or *yogi*. This is a class of persons who have elected the ascetic life as the best expression of the religious consciousness. And asceticism is regarded by many as a

means of obtaining super-human power of the most astonishing kind. Sometimes this power is called miraculous and sometimes magical, the distinction being due largely to whether or not it is associated with a deity. Some ascetics carry with them long iron rods with pointed ends, the reason being that iron is regarded as peculiarly virtuous for driving off evil spirits. There are four types of yogas or ascetic practice which are regarded as bringing power: (1) *mantra yoga*, frequent repetition of particular words expressive of deity such as "Om," regarded as of magico-religious value; (2) *laya-yoga*, concentration of the mind on an object such as an image of a god, leading to absorption with the object of thought; (3) *raja-yoga* or breath control with the object of control of the mind; and (4) *hatha-yoga* or the promotion of concentration by bodily postures, fixating the vision, etc. In addition to the yogas there are six commandments and six prohibitions which are enjoined on ascetics. The commandments have to do with begging for food, bathing, contemplation of the image of a deity, saying prayers, practicing purity and performing formal worship. The prohibitions are against sleeping on a couch, wearing white clothes, speaking to or thinking about women, sleeping during the daytime, riding on an animal or in a vehicle, or permitting the mind to be agitated. Then there are special purificatory rites performed by sadhus which are calculated to furnish an increase of power; drawing a thread through the mouth and one of the nostrils to cleanse the nasal passage; swallowing a long piece of cloth and drawing it out after one end has reached the stomach; and cleansing the throat with

a long brush. The result of these various practices is regarded as including an achievement of mystical power which may be exercised in various ways. Sadhus are reputed as miracle mongers who can cast out devils, heal diseases and poison bites, transmute metals, interpret dreams, predict the future, bring rain and perform incredible physical feats. Such is the reputation which they enjoy that many believe that their magical power is transferable. There is a practice among neophytes of yogis of preserving a small piece of the cloth which the yogi has worn and which is regarded as having attained some of the sacredness of his character. Or sometimes an impression of his foot is taken with red mud on a cloth and similarly preserved. These cloths are placed by the devotee on the head after bathing, where they are kept for about five minutes as a mark of veneration and in the hope that some of the sacred power will thereby be transferred. Probably the curse of a yogi is even more greatly feared than his blessing is cherished. The power that is attributed to him is one of the clearest living examples of a magico-religious *entente*.

The facts so far presented have been illustrations of the multitudinous occasions when religion and magic are found juxtaposed. We have seen that the two are found in such a close association in the experiences of primitive peoples and sometimes well down into cultural times, that it is well-nigh impossible to separate or differentiate them. The question arises as to whether there is a period in human history when either of them is prior to the other. The question of priority is one on which anthropologists have come to different conclusions, so that there is no general consensus of

opinion to which reference can be made. It is interesting to observe that our English word, magic, is derived, through the Latin *magia* and the Greek *μαγεία*, from the Persian *magi* or priests of Zoroaster. This indicates that in one of our earliest sources for the study of religion and magic we find them in association. The present study would indicate that the Indian materials confirm the Persian, and what has been found true of these countries is abundantly illustrated from widely different regions.

No less a name than that of Sir J. G. Frazer is associated with the view that magic is of greater antiquity than is religion, and that religion arose as it were upon the ruins of magic. When man learned that the environment was not amenable to magical control, he turned to religion; and it seems to be Frazer's hypothesis that religion is only a halfway house between magic and science. This author views magic as "nothing but a mistaken application of the very simplest and most elementary processes of the mind, namely, the association of ideas by virtue of resemblance and contiguity." In contrast with this he holds that "religion assumes the operation of conscious or personal agents, superior to man, behind the invisible screen of nature," and consequently resting "on conceptions which the merely animal intelligence can hardly be supposed to have yet attained." * Frazer summarizes his position as follows:

In magic man depends on his own strength to meet the difficulties and danger that beset him on every side. He believes in a certain established order of nature which he can manipulate for his own ends. When he

* *The Golden Bough*, abridged, pp. 54 f.

discovers his own mistake, when he recognizes sadly that both the order of nature which he has assumed and the control he had believed himself to exercise over it were purely imaginary, he ceases to rely on his own intelligence and his own unaided efforts, and throws himself humbly on the mercy of certain great invisible beings behind the veil of nature, to whom he now ascribes all those far-reaching powers which he once arrogated to himself. Thus in the acuter minds magic is gradually superseded by religion, which explains the succession of natural phenomena as regulated by the will, the passion, or the caprice of spiritual beings like man in kind, though vastly superior to him in power.⁹

In spite of that, Frazer acknowledges—he could scarcely do otherwise—that religion and magic are often found side by side. Yet he explains that when such is the case the gods are treated as amenable to magical control.

It is true [he says] that magic often deals with spirits, which are personal agents of the kind assumed by religion; but whenever it does so in its proper form, it treats them in exactly the same fashion as it treats inanimate agents, that is, it constrains or coerces instead of conciliating or propitiating them as religion would do. Thus it assumes that all personal beings, whether human beings or divine, are in the last resort subject to those impersonal forces which control all things, but which nevertheless can be turned to account by anyone who knows how to manipulate them by the appropriate ceremonies and spells.¹⁰

We have seen how true this is in India where the whole universe is regarded as subject to the gods, as the gods

⁹ Ibid., p. 711.

¹⁰ Ibid., abridged, p. 518.

are subject to the mantras. In describing the myth of Adonis, Frazer gives another illustration, where he says "the old magical theory of the season was displaced, or rather supplemented by a religious theory. For although men now attributed the annual cycle of change primarily to corresponding changes in their deities, they still thought that by certain magical rites they could aid the god."¹¹

Andrew Lang is one of the severest critics of the theory of Frazer that magic is prior to religion. His criticism includes several noteworthy points: (1) finding a race that has magic but no religion would not prove "that it did not once possess religion of which it has despaired";¹² (2) we have not the data for determining the relative priority of religion or magic historically;¹³ (3) Frazer's theory rests on a definition of religion that is too narrow;¹⁴ (4) we can find religion and magic highly developed alongside one another, as e.g., in India and Japan; (5) Frazer's theory makes the existence of religion depend on the failure of magic, a very negative and quite inadequate basis. It would take us far afield to go into the details of Lang's criticisms of Frazer, since a very respectable proportion of his volume on *Magic and Religion* is devoted to that end. Lang is of the opinion that it would be quite as easy to establish a case for the hypothesis that magic is a degenerated offspring of religion, but he wisely refrains from dogmatism, and contents himself with

¹¹ Ibid., p. 324.

¹² *Magic and Religion*, p. 47.

¹³ Ibid., p. 48.

¹⁴ Ibid., p. 48.

showing the fallacy of trying on a historical basis to establish the priority of either to the other. And as we shall observe presently, social psychology offers no better basis than history for either conclusion. We ought to observe that Frazer's definition of religion is "a propitiation or conciliation of powers superior to man which are believed to direct and control the course of nature and of human life."¹⁸ Lang says that by religion he means

What Mr. Frazer means—and more. The conciliation of higher powers by prayer and sacrifice is religion, but it need not be the whole of religion. The belief in a higher power who sanctions conduct, and is a father and a loving one to mankind is also religion. But this belief, if unaccompanied, as in Australia, by prayer and sacrifice, cannot be accounted for on Mr. Frazer's theory: that religion was invented, for worldly ends, after the recognized failure of magic, which aimed at the same ends fruitlessly. It is only by limiting his definition of religion, as he does, that he can establish his theory of the origin of religion.¹⁹

Another criticism of the theory of Frazer, a criticism which is very incisive, is that of Dr. F. B. Jevons. His position is that Frazer's hypothesis grows out of a mistaken understanding of the evolutionary process. It seems like irony for Jevons to say that Frazer's theory was a mistaken application of the evolutionary hypothesis, after Frazer had described magic as a mistaken application of the laws of association. Jevons summarizes Frazer's treatment as an evolutionary description whereby "gods were assumed to have developed

¹⁸ *The Golden Bough*, abridged, p. 50.

¹⁹ *Magic and Religion*, p. 69.

out of fetishes, religion out of magic, and prayer out of the spell." "To disprove this," says Jevons, "it is not necessary to reject the theory of evolution, or to maintain that evolution in religion proceeds on lines wholly different from those it follows elsewhere."¹⁷ A clearer understanding of the evolutionary process will disprove either of the theories that "religion is developed magic, or magic degraded religion."¹⁸ The evolutionary process is dispersive, and has been so from the very beginning. Jevons quotes from Bergson who has compared the evolutionary process to a shell which bursts into fragments the moment it is discharged rather than to a cannon ball which follows one line. If social evolution is like biological evolution, then it is neither necessary to attempt to derive religion from magic, nor magic from religion. Man has oscillated between the two from the very beginning, and the wider separation which we now witness is the result of the dispersive force of evolution which has so long been operative. It must be admitted that the criticism of Jevons is based on a view which satisfies the facts that anthropology has disclosed, as well as regards the character of social and biological evolution.

Another critic of the Frazer theory is Dr. R. R. Marett. He maintains that "Frazer's account of magic is too intellectualistic, and this is why he makes magic and religion utterly distinct in their psychological nature, so that, like oil and water, though juxtaposed, they will not intermix; and so that religion has to be credited by him with an independent and later

¹⁷ *The Idea of God in Early Religions*, p. 123.

¹⁸ *Ibid.*, p. 125.

origin.”¹⁹ It has already been observed that Frazer regards magic as a misapplication of the principle of the association of ideas. Marett’s criticisms of the interpretation are very poignant. In the first place, he shows magic is much more than an affair of misapplied ideas, or, for that matter, of ideas at all. It has a very decided emotional content that at times is nothing short of violent passion. In the second place, he decries the antiquated associationism to which Frazer still clings, and which involves a much more metaphysical than psychological account of the associative tendencies. And third, he points out that “magic proper is all along an occult process and, as such, part and parcel of the ‘god stuff’ out of which religion fashions itself.”²⁰ On account of its interest in the occult and the supernatural, an interest which it has in common with religion, it is easy for it to pass into religion, for the spell, to take a particular example, to pass into prayer. Marett’s own considered view is that, though it may be useful to hold religion and magic apart in thought, they may legitimately from another point of view be brought together, because in actual social experience they so frequently occur together.

Any criticism that may be offered of the hypothesis of Frazer needs to be guarded lest it appear to be not fully appreciative of his incomparable services to the cause of anthropology. There is no assembly of materials extant which deals with the problem of the

¹⁹ *The Threshold of Religion*, p. 29.

²⁰ *Ibid.*, p. 66.

relationship between religion and magic which is anything like as significant as *The Golden Bough*. So that if one take a critical attitude towards the work, it must be critically appreciative of his magnificent contribution, if it be also critically censorious of his psychological interpretation. It need hardly be said that *The Golden Bough* is a veritable mine of information, and even the abridged edition is a most valuable treasure house. It is because of our profound appreciation for the work of the author that one laments the fact that he continued to labour with an outworn psychology. His interpretation of magic in terms of association is a relic of the days when psychology still suffered from the domination of metaphysics. The use of the associative tendencies of the thought processes is a very suggestive method of treatment for purposes of classification. The change in the terminology of association from "laws" and "principles" to "tendencies" and "processes" is suggestive of the change in the whole standpoint of psychological science from metaphysics to biology. Marett is obviously much more scientific in explaining magical associations as due to interested attention rather than mistaken applications of metaphysical laws of thought. The mistakes of magical associations are errors to us not because we are keener students of metaphysics, but of physics and the other empirical sciences. It is the advance of science, not of metaphysical speculation, that has contributed the most to the dissolution of magical associations.

Frazer seems to think of magic as the forerunner of

religion and of religion as the forerunner of science. Magic is explanation in terms of an occult force which man can manipulate for his own ends. When he finds that method fails, he substitutes an explanation in terms of spiritual beings who regulate natural phenomena by their will, passion and caprice. Science returns to the magical type of explanation as in terms of an underlying principle of order in nature, only in science that order is described on the basis of exact observation of the phenomena themselves. Frazer has clearly understood that there is a fundamental likeness between the magical and scientific view of the world, and that the religious viewpoint is different from both of them. Perhaps the most discerning criticism of the position is that unfolded by Höffding in his *Philosophy of Religion*. He points out that one distinction between religion and science is that the latter explains while the former evaluates, and that explanations which one sometimes finds associated with religious beliefs are indications of a tendency for religion to leave her own rightful sphere and enter the domain of science. Now explanation is placing an event in a causal series, showing its connectedness with other events. Here we may observe the kinship between magic and science. Magic like science places a phenomenon in causal relationship to something else. It very frequently mistakes temporal sequence for causal sequence—*post hoc ergo propter hoc*. But the point to be observed is not so much the fact that it represents the same interest which we find in science. The trouble with magical reasoning is that its inferences are based on evidence that is insufficient. It is some-

times ready to generalize on a single fortuitous particular, to base a law on one interesting observation. The scientist frequently proceeds in his task by much the same method, but he attains more permanent conclusions because of a wider range of observation and experiment, and a more critical analysis of significant data.

The logic of magic, as we have seen, bears striking resemblance to the logic of science. So is it with its psychology. The attitudes and techniques involved are near of kin. In each case they are mechanical. Magic and science both proceed on the understanding that if certain causal factors are set into operation, certain other results are inevitable. Neither the magician nor the scientist as such assumes a social attitude towards the environment by prayer, sacrifice or offering. If they be social, it is not as magician or scientist, but as religious persons. Neither magic nor science denies the possibility of a social attitude towards the universe, but such an attitude is of no service to them. Their method of approach to problems is through and through mechanical, and that is so even when they are dealing with living organisms, or deities. The magician, as we have seen, sometimes seeks the accomplishment of the desired end by way of the deity, but when he does so he treats the deity as quite as amenable to direct action or coercion as a force of nature or a human being. The deity does what the magician wants, not because he is conciliated or propitiated but because he is compelled to do so by the inevitable action of forces which the magician sets in operation. The philosophy of magic is mechanism, but, like all mechanisms, magic

is the embodiment of someone's purpose. The purpose is control—control of the environment whether that environment be regarded as nature forces, human beings, or divine beings. And the method of control is mechanical.

Dr. Bronislaw Malinowski has made a suggestive differentiation of magic from religion:

We have taken for our starting point a most definite and tangible distinction: we have defined, within the domain of the sacred, magic as a practical art consisting of acts which are only means to a definite end expected to follow later on; religion as a body of self-contained acts being themselves the fulfilment of their purpose. We can now follow up the difference into its deeper layers. The practical art of magic has its limited, circumscribed technique: spell, rite, and the condition of the performer form almost its trite trinity. Religion, with its complex aspects and purposes, has no such simple technique, and its unity can be seen neither in the form of its acts nor even in the uniformity of its subject-matter, but rather in the function which it fulfils and in the value of its belief and ritual. Again, the belief in magic, corresponding to its plain practical nature, is extremely simple. It is always the affirmation of man's power to cause certain definite effects by a definite spell and rite. In religion, on the other hand, we have a whole supernatural world of faith: the pantheon of spirits and demons, the benevolent powers of totem, guardian spirit, tribal all-father, the vision of the future life, create a second supernatural reality for primitive man. The mythology of religion is also more varied and complex as well as more creative. It usually centres around the various tenets of belief, and it develops them into cosmogonies, tales of culture heroes, accounts of the doings of gods and

demigods. In magic, important as it is, mythology is an ever-recurrent boasting about man's primeval achievements.*¹

The position of Malinowski is on the whole in agreement with the thesis here defended, except that the attempt is made by the present writer to state the differentiation in terminology of a more psychological character.

The history of human thinking activity indicates a constantly recurring socio-mechanistic antithesis. At times this antithesis has become so sharp that some people have feared that there was a fundamentally irreconcilable dualism in the character of the cosmos. The attitudes which man assumes towards his environment admit of classification into one or the other—the social or the mechanical. By an attitude is meant a mental and motor tendency toward a certain type of activity. It is a set of the psycho-physical organism. In the main these dispositions are that of treating the environment either as organic and social, or as mechanically manipulatable. Magic, like religion, belongs to the sphere of attitudes. They are ways of thinking and ways of acting rather than the definitive contents of any particular thoughts or actions. They are habitual dispositions to endeavour to control the universe in the interests of life. But, whereas religion is found in the realm of the social attitudes, magic is typically mechanistic. Its method of control is mechanical and occult. It proceeds on the assumption that if one be apprised of the appropriate occult means,

*¹ "Magic, Science and Religion" in *Science, Religion and Reality*, p. 81.

the matter of securing the desired end is quite simple. Magic is thus a means of control, mechanical and occult, the origin of which is referable to the pre-scientific period in human history when men believed not only that anything might happen, but that anything might be induced to happen if one knew the proper means for bringing it to pass. Religion, on the other hand, regards the cosmic environment as amenable to social control and seeks to achieve its felt needs by such means as conciliation and propitiation. Magic regards the environment as impersonal; religion, as personal. It may be objected that magic concerns itself with human beings and deities. Even so, they too are controllable by a force that is treated quite impersonally. If that power is set into operation, not even the gods can prevent effect succeeding cause. But religion regards the universe as amenable to prayer, sacrifice and offering, which are the means of approach to a socially conceived environment.

This differentiation which it has been attempted to unfold is the work of culture. It is not to be found in the earlier strata of social life. When we investigate the behaviour of peoples in the primitive stages of history (pre-history), in so far as we can infer from anthropological remains we find that the different attitudes have not yet clearly evolved from the instinctive origin. Life is more impulsive than reflective. No sense of incongruity is experienced in making use of both attitudes together. Propitiation and coercion go hand in hand. Impersonal forces and personalized powers are not separated. In other words, life at that stage is an undifferentiated continuum. Religion and

magic, science and art and morality are all there, but none of them functions in its own right or independently. It is with the development of reflection that consciousness develops the ability to generalize, abstract, differentiate and classify. Obviously the distinctions we have endeavoured to indicate are the products of the higher mental processes, and consequently the differentiation of religion from magic has been possible for us only because the powers of logical inference are so far advanced.

CHAPTER III

THE RELATION BETWEEN RELIGION AND SCIENCE

It has been shown that magic is logically the forerunner of science. In both cases they arise out of a mechanical attitude towards the environing universe, and function by means of mechanically manipulated techniques for control. The fundamental difference between magic and science has reference to the validity of their observations of the behaviour of the environment, and the consequent methods of control. In both of them the forces of the environment are conceived as following the determinations of cause and effect. Magic, belonging to the primitive period of human culture, treats the sequences of causes and effects as determined by an occult power that may even be capricious. There is no particular reason why the same type of effect should be expected invariably to follow on the same type of cause. Anything may happen on the theory of magical causality. Not so with science. The causal sequence of events of the scientist is considered to follow a regular procedure. Causality has reference to a necessary and regular connection between events in a time series. The scientific conception is that events are connected in causal series in such a way that the antecedent or subsequent existence of one may be validly inferred from the existence of another. It is

not necessary in this connection to deal with any of the philosophical treatments or critiques of the causal category. The important thing to note is the difference between the magical and scientific treatments of the category. Both assume that certain events follow certain others necessarily without the intervention of any will, human or divine. But magic is defective in its knowledge of the manner in which events are causally associated, because it has reached its conclusions on insufficient observation of the facts. Both regard the sequence of events as determined by mechanically operating laws, but magic has regarded such laws as exhibiting an occult force (*mana*) which may be controlled by anyone who has been initiated into the method of its mysterious working, whereas science regards such laws as resting on the principle of the uniformity of nature and expressing the highest degree of probability. Magic may thus be described as pre-science. When the observation of the workings of the natural forces has advanced sufficiently far to make generalization and induction possible, scientific laws are formulated, and magical explanations are relegated to the scrapheap. Magic, as we have abundantly observed, may exist alongside of religion, but science brings about its disintegration.

There are a number of familiar examples of the way in which magic has been the forerunner of science, and science the destroyer of magic. Alchemy was the antecedent of chemistry, astrology the predecessor of astronomy, witchcraft the forerunner of medicine, and animism the precursor of psychology. An assistant in a meteorological observatory in South India was once

described as an astronomer from 10 A. M. to 10 P. M., and an astrologer from 10 P. M. to 10 A. M. But that is unusual. We seldom find magic and science in association in one person. "No man can serve two masters; for either he will hate the one, and love the other; or else he will hold to the one, and despise the other." Magic has been described variously as "bastard science" (Frazer), "occult science" (Tylor) and "pseudo-science," but probably the description involving the least difficulty is "pre-science" (Foster). The significant matter is that the scientific attitude perpetuates the magical, while ridding the minutiae of irrational elements. Its rationality is due to the thoroughness of its observations which makes valid explanation possible. The problem which the scientist wishes to solve is whether events which are connected are *necessarily* connected, and therefore thoroughness of observation is a prime requisite. Professor Carveth Reid tells of an Esquimo who was hunting with the group for seals. Hunger had driven him to go back to the hut for food, and he was returning to the hunt with the ham bone of a dog in his hand when he saw a seal, killed it, and thus stayed the crisis. Ever afterwards that group hunted seals with the ham bones of dogs in their hands. No scientist would reach such a conclusion of causality as did the magically minded Esquimo. Temporal associations are not necessarily causal associations. In neither case is the relation between antecedent and consequent given, but it has to be discerned by the method of analysis and inference. But the magician makes his inferences on a paucity of data with an emphasis on the extraordinary,

whereas the scientist reaches his conclusions after summoning all available data and observing the degrees of regularity and recurrence in the relations between antecedent and consequent. It is the unusual and the abnormal which attract the attention of the magically minded; whereas the regular and the normal constitute the important data for the scientifically minded. But magic affords a primitive form of the causal category and is pre-scientific in that it declares that one event is on account of another because it follows it in time. The ultimate aim with the magician is the control of the environment, and his explanation is only incidental; the aim of the scientist, too, is control, but explanation occupies a far more fundamental place in his scheme.

There are some respects in which magic is also the precursor of religion. While maintaining that the magical attitude is essentially mechanical, and consequently the logical antecedent of science, we must not ignore the other elements. It has been pointed out that magic belongs to that primitive period in the history of culture when the processes of differentiation had scarcely begun to function. For that reason it need not surprise us to find that magic has evolutionary associations with religion as well as with science. It is logically a mechanical attitude, but it is far from being always logical, so that social elements creep in, elements which are more akin to primitive religion than to primitive science.

One such element is the occult. As Marett has pointed out: "Magic proper is all along an occult process, and, as such, part and parcel of the 'god stuff' out of which religion fashions itself. And more than

this, by importing its peculiar projectiveness into the vague associations of the occult it provides one, though I do not say the only centre round which these associations may crystallize into relatively clear, if ever so highly fluid and unstable forms.”¹ This occult element is given a different name by various peoples, the most familiar being probably the Melanesian *mana*. The concept of *sakti* in India, while it covers a wider significance, is used to connote the mysterious power that is resident at once in the magical formula or rite and the deities of religion. *Mana* or *sakti* is a transcendental power capable of both religious and magical interpretation. *Mana* denotes a mysterious influence or power, in a sense supermundane, ascribed to objects, including persons, which behave in a striking manner. The word *sakti* originally conveys the idea of the active energy of the deity in Hinduism, but since the god is portrayed as transcending all qualities, this power is attributed to the female consort. The wives of Vishnu and Siva are accorded most important functions as the divine energy of the gods. Sarasvati is the *sakti* of Brahman, Lakshmi of Vishnu, and Parvati of Siva. The creative and fertilizing powers of the deities are thus pictorially represented by their female consorts. But in popular usage this same word *sakti* is used of power in a general way, and is applied to the efficacy of a magical charm or rite. Such and such a *mantra* is spoken of as one possessed of *sakti*; the sacrifice is also described as having *sakti*, and *yoga* practices are referred to in a similar way. This common usage of the word in both religion and magic

¹ *The Threshold of Religion*, p. 66.

would seem to indicate a correspondence in some measure to the Melanesian *mana*, a transcendental power which may infuse objects and persons in either a religious or magical sense.

In regarding persons and objects as possessing a mysterious potency the control of which gives control over the objects themselves, magic adopts a world view which has greater affinity to religion than science. The world view of science, as has been shown, rests on the principle of the uniformity of nature. But the world view of magic is based on man's conception of man. The universe, like man himself, is capricious. To be sure, many of primitive man's magical ideas are bound up with animistic conceptions. He believed that the whole environment was peopled with spirits like himself in being whimsical. These spirits were the abodes of occult power, and they could use this power for good or ill according to their wills. Professor J. H. Louba suggests a classification for magic² in which the principle of will-effort or efficiency is given a place. With the progress of culture and the consequent articulation of morality and religion, this idea of will-effort becomes clarified gradually of the idea of caprice, and is interpreted as more orderly and moral. The notion of coercion gives way to that of propitiation and conciliation. In both cases the environmental force is regarded as possessed of a will which is fraught with possibilities for the weal or the woe of human beings; and the rite, whether religious or magical, is designed to avert the dangerous and promote propitious possibilities. In that sense the magical attitude contains

² *A Psychological Study of Religion*, pp. 159 ff.

elements which are capable of development into the religious attitude.

The genesis of religion and science in the social life thus leads back to the time when life was not organized into articulated attitudes and techniques such as we know. In primitive life that which we call magic bulks large. In a sense it was primitive man's religion, his science, his morals, and his art. Yet in another sense it persists in a measure alongside of all of these, though less in the company of science than the others. The important thing to notice in this connection is that, genetically speaking, the relationship between religion and science is one of a common source—the complex of primitive social life in which things that we describe as magical play so important a part.

As the effort to secure control of the environment by magical means broke down, there grew up on the one hand the method of science, and on the other that of religion. Yet both had their roots in some measure in the earlier attempts at control which were more vague and fanciful. A good deal of the reasoning of primitive man was by analogy. Natural phenomena were interpreted as the actions of superhuman agents who were regarded as possessing much the same sort of endowments as man. In the thunder primitive man thought he heard the voice of a god. Eclipses, earthquakes, rainbows and such phenomena were taken as divine portents, symbols which were charged with divine meanings. When the sea became tempestuous and lashed its shores, they believed that Neptune was angry. When famine, sickness and death visited them, these, too, bespoke divine anger. The whole process

was one of analogical reasoning through which the volitions and motives that prompted human activities were carried over into the supermundane world to explain the inexplicable. Such reasoning was so fused with "god stuff" that it is thoroughly characteristic of primitive religion. Nevertheless it was also primitive man's way of explaining natural phenomena, especially the unusual, and so was the antecedent of scientific explanation.

I

The relation between religion and science is a problem of function as well as of genesis. Religion functions in our spiritual adjustments to and modifications of the extra-human environment. Science functions through our mechanical adjustments to and modifications of the extra-human environment. It has been shown in a preceding chapter that the common element amid all the bewildering forms of religion must be sought in a common attitude of mind which induces man, under changing conditions, to develop such heterogeneous forms of religion. And that attitude was described as a social attitude towards the environment. In contrast with that, if we study all the facts pertaining to the various sciences—observations, hypotheses, laws, etc.—we shall find another bewildering mass of data, so heterogeneous in form that we find it impossible to achieve a definition. Here, too, we must conclude that the only possibility of establishing a concrete universal is in terms of a common attitude of consciousness which characterizes men when they are creating the various forms of the sciences. This

attitude is the antithesis of the religious or the social attitude. Its view of the environing universe and its method of seeking to control it are alike mechanical. To put it pictorially, religion treats the universe as a person, and science treats it as a machine. To be sure, some religionists would deny that they regard the universe personally, as some scientists would deny that they regard it as a machine. But it may be maintained that the attitudes assumed are of these types, whatever may be world views of the particular persons who are religious or scientific.

This differentiation between religion and science from the psychological viewpoint was most clearly enunciated by Dr. A. C. Watson in a number of articles* which appeared in the *American Journal of Theology* in 1916 and 1918. He says:

There are the two types of environment, the human and the non-human, and the two types of reaction or attitude, the social and mechanical. Within the sphere of social attitudes towards the human environment, morality develops; within that of the mechanical or non-social attitudes towards the non-human, science; within that of social attitudes towards the non-human, religion. The social and non-social attitudes towards the non-human are not contradictory. Physical, mechanical manipulation and control of the environment only serve to enlarge that environment, and beyond the scope of achieved mechanical control forever reaches the realm of the larger organic attitude, the social attitude. In science meanings are abstracted from departments of experience for the sake of more adequate control, and this control serves in turn to

* "The Logic of Religion" and "The Primary Problem for an Empirical Theology."

produce richer meanings. A mechanical interpretation of nature is not an end in itself. It is but a means of solving problems and problems solved make for fuller and richer experience.⁴

It is clear from this penetrating analysis that religion and science operate in the same environment, viz., the extra-human. Indeed religious and scientific attitudes may both be aroused by the same stimulating object in the environment. One of the best helps for understanding the differentiation in function is to observe the different reactions evoked by the same situation. In 1924 a very heavy monsoon on the west coast of India resulted in the flooding of large districts in Malabar with a consequent devastation of property and a considerable loss of life. The Government of Madras at once appointed a special officer whose duty it was to organize relief for the sufferers on a scientific basis. Inquiries were also made into the causes of the flood with a view to ascertaining whether anything could be done to avert similar devastation in case of heavy rain again. But there was no service in going to men and women whose houses had been washed away and whose children had been drowned to explain, in meteorological or other scientific language, the causes of the flood. What they wanted was to know whether there was any meaning in the disaster, whether there was any value to be obtained by relating it to the will of God. The man who could go to the sufferers with relief for their bodies and a message of religious consolation for their souls was the sort of person they

⁴ A. J. T., "The Logic of Religion," XX, pp. 98, 260.

needed. There was a place for science and a place for religion, and no necessity for any conflict.

Another example is in the way people of India behave in the presence of disease. There are some who have considerable faith in medical science, and immediately seek an opportunity to consult a qualified physician to prescribe for their ills. They may not know anything about leucocytes, antibodies, poisons or antidotes, and yet their attitude towards disease may be the scientific or mechanical attitude. On the other hand there are many simple folks who are firm believers in the activities of spirits, and who account for disease as due to maleficent powers of whom they live in constant dread. The problem for such people becomes one of placating and conciliating these powers to persuade them to remove their curse so that the disease may abate. The means used may be the sacrifice or votive offering, or it may be magical devices such as spells and charms. At other times resort is made to exorcism, disease being equated with demon possession. There are, of course, a good many who see nothing incongruous in using medicine, magic and religion all together, in the hopes that one or all together will achieve the desired end.

A further illustration of the differences in attitudes is the viewpoint of different people in regard to eclipses. Thousands of young men and women who attend the schools and colleges are taught that eclipses are the phenomena of complete or partial obscuration of one heavenly body due to the shadow of another. They learn that such phenomena are calculable with mathematical precision so that the geographical limits

within which they will be visible and the time limits for their occurrence may be predicted for years or even centuries. Even the Indian astrologist is able to predict with remarkable nicety the time of approaching eclipses. But the traditional account of eclipses is associated with animistic conceptions, the heavenly bodies being regarded as belonging to the world of the gods. An eclipse is regarded as due to the swallowing of the heavenly body by Rahu,* the great serpent demon among the planets. Since Rahu's head was severed from his body, it enables the sun and moon to escape after they have been swallowed. Rahu being a demon, the time of an eclipse is regarded as fraught with danger. Various fastings and ceremonial ablutions, as well as other rules to be followed, are prescribed for the period. Yet here again we see many educated men, including students of the physical sciences, at one and the same time giving a scientific account of eclipses and observing the ceremonials associated with traditional astrological animism.

* The story of Rahu's jealousy of the sun and moon is as follows. When the gods were assembled to receive the nectar of immortality (*amrita*) at the churning of the ocean, Rahu was not included in the invitations. But he stole in, unbeknown to anyone, and sat down between the sun and moon, holding his cup over his head. When the divine liquid was being poured, a few drops were poured into the cup of Rahu who greedily drank it. Meanwhile the sun and moon recognized him and reported his presence to Vishnu. His head was at once cut off by Vishnu to prevent the ambrosial liquid from going down his throat. Hence he lives headless, and when he attempts to wreak his vengeance on the sun and moon by swallowing them, there is no body to complete the process, and they escape. Enough of the immortal liquid passed down his throat for his tail to live on also, though separated from his head. His tail is called Ketu, "brightness," and is regarded as the progenitor of numerous bright meteors and comets.

In religion and science we are not concerned with two environments, but rather with two attitudes towards and two techniques for controlling the same environment. The assumption of the social or religious attitude does not preclude the assumption of the mechanical or scientific attitude, nor vice versa. The typical procedure for the religious man is prayer, sacrifice or votive offering, a means whereby he can come into helpful social relationship with his cosmic environment. The typical procedure of the man of science is measurement, mechanical manipulation or explanation, another method of controlling the same environment. There is every reason to assume the validity of both methods of control and no reason to suppose that either of them is prejudicial to the other. Whenever conflict is presumed to have arisen, it is not a conflict between science and religion as such, but more likely a conflict between science and magic which is associated with religion. It may indeed be a conflict between one set of scientific notions and another, as for example two cosmologies, the one associated with the mythology or the sacred scripture of a religion, and the other the outcome of modern scientific investigation. But between religion which furnishes the social method of control and science with its mechanical method there need be no quarrel. Far from being at variance with one another, they may complement each other, and together furnish man with a more balanced view of life and the cosmos.

In the summer of 1924 a group of forty-five eminent scientists and religious leaders in America came together to discuss the relations of religion and

science. The result was a statement the purpose of which was to correct the erroneous impressions which are current today among certain groups of persons. The first is that religion can be identified with mediæval theology; the second that science is materialistic and irreligious. The statement is worth quoting in full.

We, the undersigned, deeply regret that in recent controversies there has been a tendency to present science and religion as irreconcilable and antagonistic domains of thought, for in fact they meet distinct human needs, and in the rounding out of human life they supplement rather than displace or oppose each other.

The purpose of science is to develop, without prejudice or preconception of any kind, a knowledge of the facts, the laws, and the processes of nature. The even more important task of religion on the other hand, is to develop the consciences, the ideals, and the aspirations of mankind. Each of these two activities represents a deep and vital function of the soul of man, and both are necessary for the life, the progress and the happiness of the human race.

It is a sublime conception of God which is furnished by science, and one wholly consonant with the highest ideals of religion, when it represents Him as revealing Himself through countless ages in the development of the earth as an abode for man, in the age-long inbreathing of life into its constituent matter, culminating in man with his spiritual nature and all his God-like powers.

II

A second way of differentiating between religion and science is to describe the former as an evaluatory and

the latter as an explanatory attitude. We must give to Professor Höffding the credit for clearly enunciating this difference in dealing with epistemological matters in his work on *The Philosophy of Religion*. Science concerns itself with questions of identity, rationality and causality. "Existence is unrolled before us as a great web of inter-related and continuous elements." * Science, moreover, has adopted the view that "all changes in existence are transformations from one form of life to another, transformations which take place according to definite quantitative relations." The scientific task is thus to add to the human stock of demonstrable knowledge which is very largely accomplished through the examination of particulars. Over and above this legitimate human aim there is another that demands attention, namely, the conservation of values. "Even if we could suppose the idea of science to be completely realized, the question as to the persistence of value would still remain open." † Herein, according to Höffding, lies the function of religion. Religion "grows up out of life itself, springs out of the basal mood of man in his struggle for life, out of the resolution to hold fast, under all circumstances, to the validity of that which he has learnt from experience to be of the highest value. The hypothesis that religion consists essentially in faith in the conservation of values here naturally recurs. . . . The religious interest moves us to a conception of being as the home of the development and conservation of values." ‡ Applying

* Pp. 244, 245.

† Ibid., pp. 244, 245.

‡ Ibid., pp. 92, 93.

this definition of religion to the idea of God he says that "God, as the object of faith, means the principle of the conservation of values, throughout all oscillations and all struggles, or, if we like to call it so, the principle of fidelity in existence." *

The differentiation which Höffding has made is valid within limits. If we recognize these limitations, we may appreciate the service which he has rendered in pointing out an important difference. The first criticism against the doctrine concerns the definition of religion. "Faith in the conservation of values" is an essential element of religion, but not all. Religion surely concerns itself with the creation as well as the conservation of values. The question of values is undoubtedly of immense concern to it, but it is unfair to assume that all of its values are donated and none of them achieved. The second criticism is that we cannot draw the line as sharply as Höffding suggests. He seems to assume that religion is not concerned with problems of rationality and causality and that science is not troubled about values. This is of a piece with the logic which attempts to separate into water-tight compartments value-judgments and judgments of existence. Surely no serious student of the sciences would maintain that he is not interested in values. The truth is that science seeks to contribute to the fullness of life as religion does, only it seeks to do so by means of a different method. The Copernican astronomy was necessitated by the problems for navigation growing out of the voyages of Columbus and Magellan. There is one cherished value which is the particular

* Ibid., p. 134.

concern of science, viz., truth. Dean Inge has put the matter very clearly:

Valuation is as much a fact of our nature as sense-perception, and cannot be separated from it. If we think the matter out, there is no fact without value and no value that is not a fact. All that we perceive, we perceive as having value. Unity and conformity to law are part of one of the ultimate values, inherent as ideals in our minds. The statement sometimes made that science observes facts without valuing them is untrue, and it introduces great difficulties into philosophy because it seems to justify the error that it is possible to build up a world by purely quantitative standards. All knowledge is of the *quality* of whatever exists. But judgments of quality are related to universal standards which are part of the texture of the mind. It is very important to insist that the world as known to science is just as much a kingdom of values as the world known to religion. The difficulty is that the values are not the same.¹⁰

On the other hand religion frequently feels that certain scientific explanations threaten traditional values, and it is jealous to guard those explanations which will preserve what it regards as worthful. The position that religion gives us value-judgments whereas science gives us existence-judgments was taken by Albrecht Ritschl.¹¹ It is a position that can scarcely be vindicated because experience does not disclose to us any sharp antithesis between the two types of judgment. The two matters of existence and of value are constantly interfused. Any judgment, whether it be of

¹⁰ *An Outline of Christianity*, "Religion and Science," IV, p. 6 (footnote).

¹¹ *Justification and Reconciliation*, pp. 207, 614, 616.

value or not, implies some sort of existence in that which is under judgment. And the process of judging involves analysis and classification which implies the use of certain norms as a basis for evaluation. Just so, the process of thought discloses a constant intermingling of the religious and scientific interests, and the differentiation of them cannot be achieved by attempting to erect a barrier, even a logical barrier, between their functions.

Despite these qualifying statements, it must be cordially admitted that the differentiation made by Höffding is serviceable. Explanation is essentially a scientific undertaking, and explanation means placing an event in a series so that it will be related causally or logically to the other members of the same series. The scientist carries on his work, in which he deals with such concepts as time, space, number, motion and cause, on the tacit assumption that, if he were to overtake his task completely, there would be nothing inexplicable in the environment. If such a time ever arrived, the question arises as to what would become of religion. It has not infrequently happened that religion has thought it necessary to set up religious explanations in opposition to scientific explanations. In these cases the religious explanation was the first in the field and was originated because of scientific agnosticism in regard to certain matters. Mediæval theology seized on the conception of Aristotle of a First Cause, himself uncaused, a Prime Mover, himself unmoved. When Galileo stated the law of the pendulum as an instance of self-motion, there was at once a conflict with those who clung to the mediæval

idea of God-originated motion. The struggles of the sciences for freedom have been due to the fact that their natural explanations have run counter to pre-scientific explanations which had religious sanctions behind them. Another mediæval conception was that religion was concerned with ultimate causes in contrast with science which was concerned with proximate causes. Granting the distinction to be valid, what would take place if science made such progress as to be able to give a thorough causal account of phenomena without the necessity of reference to first causes? If religion conceived of her task as that of giving supermundane explanations as opposed to scientific explanations, her very existence would be threatened.

But religion has discovered that there are other things to be done for life than explaining phenomena. After science has completed her work, be it never so perfectly done, there still remains the religious undertaking of reading meanings and extracting values. A thoroughgoing bacteriological account of a disease may be of immense value to a pathologist, but it offers no consolation to a mother who has lost her child. An explanation in terms of economics or politics of the Great War may be highly interesting and instructive, but it does not heal the wounds of hearts which have been deprived of loved ones. An explanation of the failure of rains and consequent famine serves its purpose in scientific circles, but the Indian villager who cannot see food in sight for his children is more concerned with relating the famine to the operation of supernatural powers whom he seeks to conciliate. The advance of science does not spell the jeopardizing of

religion because religion is able to do something for man which science can never do. It is able to find

Tongues in trees, books in the running brooks,
Sermons in stones, and good in every thing.

Religion, as Höfding puts it, meets two of the pressing needs of life which cannot be satisfied by scientific means. The first is "the need to collect and concentrate ourselves, to resign ourselves, to feel ourselves supported and carried by a power raised above all struggle and opposition and beyond all change," a need which he thinks is developed in mysticism and monotheism. Then secondly, "within the religious consciousness another need makes itself felt, more or less energetically and in the rhythmical interchange with the first need, i.e., the need of feeling that in the midst of the struggle we have a fellow-struggler at our side, a fellow-struggler who knows from his own experience what it is to suffer and to meet resistance."¹¹

Science can never give to us the sense of consolation in life's sorrows and of comradeship in life's struggles. It cannot give us the consciousness that our moral and spiritual yearnings and strivings are of cosmic significance. These are values which can be achieved and conserved only by faith.

Faith may be intimately linked with science, and may persist in spite of science. Faith is an adventure into the realm of the inexperienced and the undemonstrated. For the majority of thinking people it is difficult to have faith in a project which is scientifically impossible. The facts which come to light through

¹¹ *Philosophy of Religion*, pp. 162, 163.

cosmology, physics and biology cannot be utterly neglected by religion. The conflicting views which arise in the minds of some people are due to the sciences making discoveries which render literal interpretations of religious mythologies precarious. In such cases there are two possible reactions. One is to treat the religious myth as an analogy, a procedure with considerable justification because religious ideas are so often expressed in the language of analogy, the language of qualitative similarity. The alternative course is to cling to one's faith in the credibility of the myth. It may be argued that, whereas the sciences give us the normal and regular way in which phenomena occur, sometimes occasions have arisen wherein God has temporarily set aside natural law to work a miracle.

The problem of miracle is one of the greatest perplexities in bringing about a working agreement between religion and science. Many scientifically minded people feel that the belief in miracle could arise only in an age of scientific agnosticism. They believe that the universe is characterized by regularity, and that any other belief would necessitate regarding it as a chaos rather than a cosmos. There are natural laws which have not yet been discovered, and the scientific task is to bring the whole of the phenomenal world increasingly within the scope of natural explanation. Belief in miracle arises when something takes place which cannot be subsumed under any known law, and therefore has to be referred to divine interference. To say that an event is a miracle is to explain it by referring it to God. But explanation is primarily

the task of science, so that when a natural explanation is achieved, the reference to the supernatural becomes unnecessary and irrational.

A comparison of definitions of miracle proposed by different authors is illuminating as indicating the difficulties experienced with the concept. One method of definition is, as indicated, to identify it with the inexplicable, or to say that it is an event which cannot be subsumed under any recognized law. This is the position of Professor William Adams Brown. Others make the same position somewhat more explicit, describing a miracle as an event in accordance with a divine law which is not yet known to man. The late Professor W. N. Clarke and Professor H. C. King use the word in that sense. The traditional definition as given by David Hume and many other writers is in terms of a violation of the natural order by the immediate efficiency or direct volition of God. Among the writers who feel the religious urge to retain the concept there is a tendency to obscure its meaning by defining it less precisely. Schleiermacher spoke of miracle as "the religious name for an event." Professor N. Shaler in his *Interpretation of Nature* described it in the phrase "the latent in nature." And Wendland characterizes it as "something in which God objectively acts." The definitions of the more modern writers, of which only a few have been given, are symptomatic of a conflict between the religious urge and intellectual interests in the mind of the modern man. He wants to be scrupulously fair to science, and yet he is unwilling that religion shall be robbed of any of its values. The idea of miracle cannot quite

be dismissed, as Höffding tends to do, as a religious interference in the scientific task of explaining. It has persisted in religions, to use his own phrase, because of man's "faith in the conservation of values." It has been a real value of judgment for the religious consciousness of many people, as is obvious from the definitions of Schleiermacher and Wendland. It has been an event in which man has felt God to be present in a special way. As Goethe said, "Miracle is the beloved child of faith."¹²

Nevertheless the problem of miracle is exceedingly complex. It involves problems of literary, historical, scientific, metaphysical and religious characters. The majority of miracles in which men believe are recorded in sacred texts which they regard as revelatory. From the literary point of view the problem is inextricably interwoven with that of revelation. The question which has to be faced concerns the character of the record in which the account is found. Was it designed to be a narrative, or a parable, or a poem? Must the interpretation be literal, if it is to be fair? The historical problem is concerned with evidence, and with the truth of the record as a matter of fact. The scientific problem involves the question of possibility, and the relationship between the event recorded and our knowledge of the behaviour of nature under similar conditions. The metaphysical problem relates the phenomenon to one's view of the universe, and to the type of world in which such events could occur. Religion is concerned with one's view of the nature of God, and with whether the character of one's faith is

¹² "*Das Wunder ist des Glaubens liebstes Kind*" (*Faust*).

such as to need or even to admit of such divine interventions. The matter may be made more explicit by means of a concrete illustration. The Ramayana contains a legend of Hanuman uprooting one of the peaks of the Himalayas and carrying it to Ceylon. The literary problem concerns the character of the epic. Is it written in the language of exact science, and did the writer anticipate that it would be so interpreted? Or is it the language of poetry and analogy, intended to stir the imagination and inspire the religious consciousness? If some of the writers of ancient scriptures, Hindu or Hebrew, were to revisit the earth in the twentieth century and find men contending for the scientific accuracy of accounts which they obviously intended as poetic expressions of religious values, surely they would be unable to suppress a feeling of pathetic amusement. The historical problem is concerned with the facts. Did Hanuman actually uproot the Himalayan peak and bear it to the South, and what is the supporting evidence on which we can base such a conclusion? The absence of historical evidence coupled with the apparent religious motive of the writer prevents us from readily consenting to the account as a record of fact. Science asks a further question: Is there any possibility that such a remarkable feat could be accomplished as that accredited to the monkey-deity? The answer is fairly obvious. The method or device has not yet been disclosed that would come anywhere near satisfying the demands of scientific possibility. Philosophy inquires as to the worldview of the writer of the Ramayana. Was the environment to him a cosmos? Was it a uni-

verse? Was it a one-world world like the world of Sankara? Or did he conceive it according to the *dvaita* interpretation? The metaphysic of a traditional belief in miracle is always dualism, if it be logical. Finally, what conception of God has one who believes that He can or does or ought to resort to such extraordinary means of acting to accomplish His purposes for mankind? Does the tradition of Hanuman uprooting the mountain and bearing it to Lanka satisfy the demands of the most profound moral and spiritual life? This is an analysis which can be applied to any tradition in any scripture, and it cannot but impress us with the exceedingly complex character of the miracle problem.

It is not many years since apologists of religion resorted to miraculous accounts in defense of the supernatural character of their revelations. The deity of Jesus or of Krishna was established by reference to the miracles associated with their names. A missionary of my acquaintance was lecturing to educated Hindus on the deity of Jesus and made use of the accounts of his miracles for apologetic purposes. At the conclusion of the lecture the chairman, a Hindu, in thanking the lecturer pointed to the parallelism, "You have established the deity of Jesus by his superhuman power," he said. "So we, too, defend the deity of Krishna by his miracles." As an example he quoted the account of Krishna's sporting with the Gopi maidens. But the last twenty-five years have witnessed a reversal in the procedure. Nowadays instead of miracles being adduced in evidence of supernatural power, the miracles themselves have become the problem. Instead of attempting to prove that

Jesus and Krishna were divine because they were workers of miracles, apologists endeavour to establish the credibility of their miracles on the ground of their supernatural personalities. Another evidence of a consciousness that miracles are problems for rather than aids to faith is in the attempt to establish their credibility by showing them to be within the range of scientific possibility. König in the article on "Jonah" in Hastings' *Dictionary of the Bible* quotes from various sources accounts of whales and sharks in substantiation of the Jonah story. From one source he quotes the story of a whale hunter, James Bartley, who in 1891 is said to have been swallowed by a whale which was captured and killed the following day. The whale was cut open and Bartley removed from its stomach where he lay in a swoon but still alive. It was with difficulty that consciousness was restored to the sailor and it required three months of careful nursing before the unfortunate man's reason was restored. There have been many parallel attempts to justify the credibility of miracles. In support of Jesus turning water into wine it is maintained that every year on a score of Galilean hillsides water is turned into wine as the rain descends, and the grape vines, drinking the moisture from the soil, convert it into the juice of the grape. In India it is argued that the big cannon of the Great War is a scientific verification of the truth of the great arrows which Rama flung at his demon enemies. So also the aerial combats of the war sustain the credibility of the account in the Mahabharata of the fight wherein the Pandus conquered their enemies by aerial chariots.

Ravana's aerial car, described in the Ramayana, is also validated by modern triumphs in aviation. What, then, is the significance of the procedure? On the one hand it illustrates the fact that the position of miracles has altered from one of apologetic value to one requiring apologetic defense. On the other hand it tends to rob miracle of its traditional meaning, for if its credibility be established by natural processes, then it ceases to be divine intervention and becomes natural instead of supernatural.

The problem of origins is another problem which has brought about tension between religious men and men of science. Back of that lies the theory of cosmology. The traditional Hebrew view of the cosmos was geocentric, the earth being flat, supported by pillars at the four corners, and overarched by the canopy of heaven. Hindus have been less precise in their descriptions, and different systems and periods have developed somewhat different views. One of the most familiar views is the Ramayana account, which is akin to the Hebrew, the earth being pictured as flat, while it is supported at the four corners by four immortal elephants. How did the world come into being? The Hebrew explanation is contained in the first two chapters of Genesis in which it is described as an act of creation. There is more than one Hindu account, but the commoner method of explanation is also in terms of creation, the creator going under different names, Prajapati, Swayambu Narayan, Swayambu Brahman, and sometimes Non-being. In the Brahmanas there are various accounts, but they usually begin by some such statement as "In the

beginning was Prajapati, nothing but Prajapati; he desired 'may I become many'; he performed austerities, and thereby created these worlds." In the Upanishads the tendency was to substitute some metaphysical principle for Prajapati, such as Brahman, Atman, or Non-being, and to interpret the universe pantheistically. In the Puranic literature cosmography goes into great detail, describing numbers of upper worlds, of hells, and of regions around the universe.

The older cosmologies, which we find reflected in the literature mentioned, functioned satisfactorily up to a certain point. The Hindus had a tabu on crossing the ocean so that they did not encounter the difficulty experienced in the western world. The old Ptolemaic system operated fairly satisfactorily until the era of discoveries and exploration. But Columbus' finding of the new world (1492) beyond the supposed limits of the earth, and Magellan's circumnavigation of the earth (1519 to 1521) that hitherto had been supposed to be flat, upset the older notions. It was the pressing human need for a new astronomy to meet the demands of navigation that created the crisis. The man who rose to meet it was Copernicus with his heliocentric doctrine which at once came into conflict with the Church that had placed its imprimatur on the geocentric doctrine. The story of the persecution of Bruno and Galileo is a familiar one. Ten years after the martyrdom of Bruno (1600) the newly invented telescope of Galileo established the truth of that for which Bruno had been burned. The struggle was a long one but eventually the new cosmology won a complete

victory, so that the religious susceptibility of no one seems to be injured by the fact that the accepted cosmology is not the same as the one held by the Hebrews and by the Christian Church until modern times.

The older cosmology made the earth the centre of the universe and regarded man as the centre of interest in the earth. The universe was anthropocentric as well as geocentric. The earth was thought to be stationary, the sun revolving about it. And man was as static as the world in which he lived. Copernicus began the revolution in thought by the destroying geocentric doctrine. Darwin completed the destruction of the older cosmology by attacking anthropocentrism. The chief value in the newer view of things was that it was dynamic in contrast with the statical view which had prevailed.

The evolutionary concept is one which can be traced in one form or another back to the Greeks. They were much concerned over the problems of being and becoming, some holding the one to be real and the other appearance, and others reversing the processes. Heraclitus believed that there was no permanence, but all was flux and flow. Anaximander taught that man originated from a fish and used to be an aquatic animal. Aristotle's philosophy of evolution was logical rather than biological, the chief tenet being that what is implicit in lower forms becomes explicit in higher forms. Descartes and Leibnitz hinted at the probability of higher forms of life springing by gradual processes out of the lower. It remained for Charles Darwin and Alfred Wallace to give the theory a more scientific formulation on the basis of biological investi-

gation. In present day usage the term evolution means "that existing plants and animals have been derived by lineal descent from previously existing forms that were unlike them."¹⁴ As Thomson and Geddes have put it, . . . "changing order, orderly change, and this everywhere in nature inorganic and organic, in individual and in social life—for this vast conception, now everywhere diffusing, often expressed, rarely as yet applied, we need some general term—and this is Evolution."¹⁵ The term is thus of sociological as well as of biological significance, and bears the meaning of process and progress as applied to both organic life and social life.

The hypothesis of evolution has been the cause of much disturbance in the minds of many religious people. This is due to its running counter to the account of origins contained in the sacred scriptures. The Hebrew account tells us that God created the heavens and earth, the great lights, the various animals and man. It does not tell us whether He first made matter and then gave it form, or whether He gave form to matter already in existence. In the account of man it records that "God created man in His own image," and formed him "out of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul."¹⁶ Obviously this account is at variance with that of organic evolution, and various methods have been suggested for solving the problem to which it has given birth. One

¹⁴ J. M. Coulter: Art. "Evolution," in Mathews and Smith: *Dictionary of Religion and Ethics*.

¹⁵ Thomson and Geddes: *Evolution*, pp. viii f.

¹⁶ Gen. i. 27, ii. 7.

way of dealing with the dilemma is the easy method of denying that there can be any truth in the evolutionary theory. The Genesis account is part of a divine revelation, and the biological account is nothing more than a mere guess, designed to rob man of his dignity and God of His power. This view implies the right of religion to offer explanations, or the supposition that the account in Genesis is of scientific as well as religious worth. It is virtually akin to the magical or pre-scientific attitude which accounts for origins by references to the occult. A second solution that has been proposed is that we may accept the evolutionary account in so far as man's body is concerned, but that needs to be supplemented by a religious account of his conscience and soul. When the appropriate place in the evolutionary process had been reached, God breathed into man the breath of life and he became a soul. Thus man's moral and religious nature is held to be still the product of divine creative activity. It is a method of compromise, admitting the scientific account up to a certain point, and thereafter questioning it. The third alternative is to admit that science has a right to give us an account of the origin of the whole man. The second alternative proposed implies a psychological dualism between body and soul which modern science cannot admit. The functional conception of an integral psycho-physical organism has displaced the faculty notion of body, mind and soul, separate from one another. On this view man is believed to have risen gradually from lower orders of life until he has attained control of the very nature to which he owes his existence. The criticism some-

times levelled at this point of view is that it pushes God out of His universe and tends to a frigidly mechanistic world view. This criticism is answered by insisting that it affords a basis for a very profoundly religious interpretation. God is in His world, creatively active in the on-going processes. The concept of creative evolution does justice on the one hand to the transcendence of God which the creationistic doctrine was in danger of overemphasizing, and on the other hand to divine immanence which is quite as essential to the religious consciousness. When applied to the questions of social betterment the concept of evolution affords a much more hopeful approach than other doctrines. Even the creationist will talk about the world *growing* worse, and despairingly admit his inability to prevent it. But the evolutionist believes in the possibility of changing the environment and changing human nature for the better, and his hope leads him to an enthusiastic coöperation in all schemes for social amelioration.

But what about the conflicting explanations of revelation and science? Is there any way in which this apparent dilemma can be resolved? If they both are considered as explanations, there is not. And there is nothing to be gained by trying to argue the incompatibility out of existence. It must be remembered that both of these accounts of origins are hypotheses. When it is maintained that evolution is a "mere guess," a hypothesis being nothing more than a highfalutin name for a guess, it should not be forgotten that the cynicism is equally hard on the creationistic theory. The author of the Epistle to the

Hebrews stated that "it is by *faith* we understand that the worlds were created by the command of God."¹⁷ In the nature of the case demonstration or evidence is impossible. So that what we have is not fact versus guess, but one hypothesis versus another, with the whole weight of scientific testimony on the side of evolution. In a recent pronouncement of the American Association for the Advancement of Science the following resolutions were adopted:

(1) The Council of the Association affirms that, so far as the scientific evidences of the evolution of plants and animals and man are concerned there is no ground whatever for the assertion that these evidences constitute a "mere guess." No scientific generalization is more strongly supported by thoroughly tested evidence than is that of organic evolution.

(2) The Council of the Association affirms that the evidences in favour of the evolution of man are sufficient to convince every scientist of note in the world, and that these evidences are increasing in number and importance every year.¹⁸

Is the correct procedure for science, then, simply to apply the *tu quoque* argument? There is a much better way. It is to recognize that Genesis and the Brahmanas are religious books and were never intended as scientific treatises. The great conviction of the authors was that somehow behind the facts and phenomena of Nature there must be a designing intelligence. They are both elementary forms of the cosmological argument. The great numbers of living scien-

¹⁷ Heb. xi. 2.

¹⁸ *Nature*, July 11, 1925, p. 69.

tists who are profoundly religious men bear ample testimony to the fact that it is possible to believe in evolution and at the same time appreciate the postulates of faith that, back of all these cosmic processes, or in them, there is God. The scientist explains the universe in terms of an evolutionary process; the religious man finds meaning and value in it in terms of God. Each has his distinctive contribution to make to the enrichment of life, and there is every reason why they ought to coöperate towards that common purpose.

It must never be forgotten that religion is experienced in the same environment as science, and that it is an environment increasingly capable of scientific interpretation. If the scientific view of the universe, which is becoming increasingly complete in detail, were giving us a picture incongruous with the life of religion, it would be fraught with danger. But in truth scientists claim to be discovering a new homogeneity in the material universe. Physical factors are reducible to electrons and protons and waves in space, over against which we have the mental facts. "It is an impressive fact that one system of formulation suffices in the chemico-physical world from the smallest particles to the stellar universes."¹⁰ If the researches of the biochemists should one day be rewarded with the crowning success that would enable them to manufacture protoplasm, the homogeneity of the universe would be still more evident. As matters stand, the sciences have clarified our view of the

¹⁰ J. Arthur Thomson: *Science and Religion*, p. 57.

universe so as to make a rational view of religion more tenable. The universe as depicted by modern science is not unfriendly to the man with religious aspirations,

III

A third method of differentiating between the religious and scientific attitudes is to point out that religion is concerned with life in its totality, whereas science concerns itself with particular problems and situations. There is no single science that deals with the whole of phenomena or experience. Each science specializes in some problem or group of problems and employs the conceptions and the technique which will enable it to describe the phenomena with which it is concerned. It devises appropriate instruments or tools which are designed to further the processes of control and manipulation. The test which applies alike to its mental tools and physical tools, that is, its concepts and its instruments, is their capacity or efficiency to further the problem-solving and controlling processes. It is inevitable that the sciences should increase the sum total of knowledge by piecemeal additions. Scientific knowledge always comes bit by bit, never in large lumps. That is because each science takes as its field of inquiry a definite group of phenomena, and seeks to explain the facts observable in that field, and to devise methods for bringing the field more completely under human control.

It is possible to summarize the stages through which scientific inquiry proceeds, as follows: First there is the pre-scientific period in which the consciousness of problems has not yet become articulate. In this stage

man reacts unreflectively and uncritically to his environment, and seeks to gain control by magical and animistic means. Indian people who have not had cultural advantages on their first contact with scientific inventions, such as the railway telegraph, gramophone, motor-car, etc., have frequently believed them to be the work of mischievous spirits. It requires time and experience for critical reflection to begin before they can adjust themselves to the new situation. There is a tendency for the old attitude to persist into the second stage when the consciousness of the problem begins to emerge. Facts are manipulated in a relatively crude way and organized without much precision. There is the curiosity to know more about the mysteries that are just beginning to unfold. But this sense of mystery is still attached to the world of spirits and gods, and man feels that all phenomena are in some way associated with them, particularly when the explanations for phenomena are not yet forthcoming. One of the popular ideas among Hindus is that each department of life comes beneath the ægis of a protecting deity. Sciences have their occult side as well as their more familiar and practical aspects. This is the stage where critical differentiation is beginning to dawn. At a third stage there is an augmenting of rational criticism and explanation. The facts which have been observed are analyzed, classified, and correlated in so far as they will admit. Special attention is given to sequences and possible relationships. Then hypotheses are framed as a method of bringing together various elements in experience so as to allow no facts to remain isolated. Strictly speaking hypothe-

ses are unverified or only partially verified guesses, so that term is also applied to that which has not been completely demonstrated. These hypotheses are put to the test in the laboratory of the science, and if they are confirmed by experiment, are considered to be demonstrated. If exceptions occur, then new hypotheses are framed which endeavour to take account of the older hypotheses, and the observed exceptions. This period of experimentation and rigorous research is the final stage of the inquiry. The hypothesis which has been obtained inductively is now thoroughly tested deductively, significant facts are observed, and an orderly coherent view of phenomena gradually built up.

Scientific inquiry is always concerned with particular problems. To be sure, one effect of an inquiry is to obtain a certain solidarity of effort. Though the problems attacked are individual, modern science proceeds on the understanding that any person who fulfils the required conditions may make the same observations which the scientists claim to have made. Scientific workers have no monopoly of scientific facts. Accounts of demon possession, evil effects from inauspicious omens, operations of the evil eye, black magic, and the like, which are so prevalent in India, cannot be made the object of scientific inquiry until they can be so integrated with ordinary experience that any man who so desires can observe and analyze them. That is one of the difficulties with events that are placed within the category of miracle. But when a scientific problem confronts the world, there is a corps of workers ready to lend their efforts towards

effecting a solution. Scientific inquiry is a great coöperative enterprise, each man contributing his bit to the solution of the problem and frequently never surviving to enjoy the fruit of his own efforts.

So far the sciences have developed only so as to provide man with a technique for a mechanical manipulation of a fraction of his environment. Each particular science is limited much more, and comprises within its range a much smaller group of phenomena. That means that the scientific attitude is always and necessarily selective. One evidence of the selective character of scientific procedure is that the achievement of a thorough technique depends on the situation's being repeated with sufficient frequency to enable the observer to obtain the required data for generalization and analysis. The mechanism of human observation itself is a guarantee of the essentially selective nature of the process. Professor G. H. Mead has put the matter in this way :

The scientist always deals with an *actual* problem, and even when he looks before and after, he does so in so far as he is facing an enquiry into some actual problem. No actual problem could conceivably take on the form of a conflict involving the whole world of meaning. The conflict always arises between an individual experience and certain laws, certain meanings, while others are unaffected. These others form a necessary field without which no conflict can arise. . . . The attitude of the scientist never contemplates or could contemplate the possibility of the world in which there would be no reality by which to test his hypothetical solution of the problem that arises. . . . The world of the scientist is always there as one in which reconstruc-

tion is taking place with continual shifting of problems, but as a real world within which the problems arise."¹⁰

The scientist deals with particular problems in a world which he regards as real and coherent. He assumes coherency whether he definitely posits it or not. He argues by analogy that because particular observed instances have certain elements in common they will be alike in other respects. The argument from analogy forms the ground work of hypothesis formation. Pre-scientific explanations also were largely based on this principle. Primitive man regarded thunder as the voice of his deity. The Hindu interprets the red rays of the rising sun as due to the blood of slain rakshasas, thunder as the crack of Indra's whip, lightning as manifestation of the fire god, Agni, comets and meteors as the operations of Ketu, and eclipses as the swallowing of the sun or moon by Rahu. The principle of analogy as applied in modern science is the same but the observations are more thorough and references to the occult are eliminated. The purpose of analogy is inference, but since it yields only probable conclusions it needs to be supplemented by experiment and more careful observations. As B. Bosanquet pointed out it is more important to *weigh* the points of resemblance than merely to count them."¹¹ Only thus is it possible for analogy to pass beyond the stage of argument from particular to particular to that of generalization which will do justice to the particulars.

¹⁰ Art. "Scientific Method in Creative Intelligence."

¹¹ *Logic*, II, p. 99.

Religion also makes use of the language of analogy. As Höffding says: "We do not cease forming ideas even when we have reached the limit of all knowledge, where no further clear and uncontradictory concepts can be formed. The religious need is particularly impelled to construct ideas at this limit. If we examine these ideas a little more closely we shall see that they all owe their origin to analogy."²²

The justification of analogy in either case is to be found in its serviceableness. If by analogies predictions and calculations are more readily made, then they are useful to the scientist. If they enable us to understand the meaning of life better, so as to be able to achieve its higher values, then they are serviceable to the religious consciousness. The analogy is one of the most valuable instruments in religious epistemology, and the perennial effort of man is to find what God is like. If the religious analogy simply leads from one particular to another it is no different from any other kind. But if it leads to more general concepts, to metaphysical interpretations, it must be the outcome of careful weighing of the data and consideration of the relationship between the data and other achieved knowledge.

It is characteristic of the religious attitude that it is concerned with life in its integrity, and regards its activities as of cosmic significance. The religious attitude is less selective and more sweeping than the scientific. It looks upon the environment with which it is trying to establish helpful social relations as a unity, whereas the scientific attitude, seeking for

²² *Philosophy of Religion*, p. 70.

mechanical control, regards it as a plurality. To be sure, the unity which the religious attitude assumed is variously characterized. Sometimes it is interpreted pantheistically as in the Vedic and Dravidian religions, sometimes pantheistically as in the Upanishads (the Vedantism of Cankara), and at other times monotheistically as in Islam and Christianity. Nevertheless it is a cosmos and not a chaos, a universe and not a pluriverse. And religion seeks to put man into relationship with the extra-mundane environment in its wholeness.

The means whereby men endeavour to establish helpful social relationships with their cosmic environment vary with the cultural state of the people. Among primitive races flattery, bribery and gaudy gifts are employed to that end. The natives of Africa will sometimes beat their fetishes when they do not attain the ends they desire. The Dravidian of South India discards his idol when it has ceased to be useful to him. The real purpose of the idol is symbolic, and it appeals powerfully to the consciousness of those who have not learned to use mental imagery. Among Protestant Christians the practice of idolatry is not condoned because such images are regarded as belittling God. The Protestant prays to one who is unseen, but the illiterate Indian villager cannot understand how a man can carry on prayer and worship with no visual images present. He finds the physical image a reënforcement to his faith, and regards it as giving stability to his religious exercises. The visual object enables him to keep his mind on the power which it symbolizes. The difference between the pre-cultural

man and his more sophisticated brother is not, as is sometimes supposed, that the former uses images while the latter does not. It is rather that the former thinks he must have concrete physical images to carry on his worship, while the latter content himself with mental images. Images are the material of the thought processes, and it is inevitable that we use some sort of imagery—visual, verbal, or what-not—to carry on the processes. But that is by the way. The point to be observed in this connection is that the person regards the object of his worship as of cosmic significance, whether the forms be primitive or sophisticated. The means employed may be flattery, bribery, or even abuse; they may be social and philanthropic service; or they may be largely interpreted in ethical terms. But religion in any case interprets the world as a totality or unity in terms of social relationships which are established with a view to living with it so as to secure the maximum of satisfaction for the spiritual life. One of the most inspiring of modern conceptions of the religious life is that it is a partnership with God in undertakings that are of cosmic worth. God's tasks are real tasks, and His need of human help is real. So that man is God's comrade in working out purposes that affect the ultimate character of the universe, and God is man's comrade sustaining and strengthening him so that he may do his part.

IV

A fourth way in which it is possible to differentiate between religion and science is to say that the former

is concerned with the qualitative, and the latter with the quantitative." (Friedrick Daab in his essay, "Religion and Science," says: "Religion experiences; science calculates. Religion creates; science discovers. Religion ventures; science weighs."*) The differentiation seems to be valid. If science is to furnish us with a mechanical technique for the manipulation of the environment, it must utilize the methods of calculation and measurement. This is not only true in regard to the physical and mathematical sciences, but mathematical accuracy is the desideratum for all scientific work. Modern philosophy, beginning with Descartes, has endeavored to apply the scientific method to its problems, and to be studiously accurate in all of its processes. Measurement is a typical scientific procedure and one which obviously demands accuracy of observation, record, and calculation. On the other hand the method of organization for social control is that of living through experiences, taking risks if that seems desirable, and seeking to interpret the experiences qualitatively. Temperature, cloth and even intelligence are capable of being measured, but not so mother's love, or patriot's zeal, or soldier's courage, or grace of God.

The great reason that the sciences work quantitatively is that mechanical control is possible only through scrupulous accuracy. Quantitative observa-

* B. H. Streeter in his recent work, *Reality*, has emphasized this point, making it the basis for an epistemological differentiation.

** *Die Religion erhebt; die Wissenschaft berechnet. Die Religion schafft; die Wissenschaft entdeckt. Die Religion wagt; die Wissenschaft wägt* (art: Religion und Wissenschaft) in *Das Suchen der Zeit*, V. (1909), p. 123.

tions lead the way to the understanding of sequences both chronological and logical with a view to establishing causal relations. Hypotheses and laws are built on the basis of these observations, and their function is instrumental. Through them we achieve our control of the environment. The control of the present and of the future is made possible by the calculated data of the past. Religion however, is, characterized by a venturesomeness that transcends scientific calculation. It is more apt to venture to manipulate tools forged out of untried materials. To be sure, science has its faith also and makes adventures in the field of hypothesis and experiment, but in so doing it builds with the calculated data of the past. Religion is more creative, and is constantly constructing new tools and new values. The calculations of science are made on the basis of the past; the adventures of religion are frequently made in spite of a past that would seem to indicate failure.

Religion, being social, deals with both parties of the religious relationship as persons. Now it is characteristic of personality that the method of calculation is decidedly limited. One can predict with a great degree of certainty what a mechanism will do under certain conditions. But such predictions in regard to persons are liable to be quite upset. A person is characterized by the conative ability to react quite differently to a stimulus at different times and just because of that fact radical behaviourism can never be a satisfactory interpretation of psychological facts. When we are dealing with reflexive and instinctive behaviour we can predict the future fairly accurately

on the results of the past; but the method breaks down when applied to conscious conations. The religious attitude, involving a relationship conceived in personal terms, ventures very often to neglect the quantitative element, and to undertake a line of action based on the experienced needs of life and its interpretation of the power or powers with whom it is socially related. It would be a one-sided view of truth to consider it as all mechanically calculable. Many of the most cherished truths of human experience have been achieved in social rather than mechanical processes. We may admit that the knowledge of God is not comparable to such a geometrical formula as that the sum of the angles of a triangle is equal to two right angles. Yet in the field of social experience we may attain a certainty that science could neither discover nor question because it has not the necessary technique for such investigation.

One of the difficulties that has arisen is in regard to the concept of infinity. A number of modern philosophers, including William James and James Ward, have argued that God must be finite. The great human problem which has led to that postulate is the problem of evil. The presence of evil in the world makes it exceedingly difficult to reconcile the omnipotence of God with His goodness. Goodness cannot be abandoned without an entire loss of faith, so the concept of infinity is given up. William James gave expression to this view in the following passage:

The only way to escape from the paradoxes and perplexities that a consistently thought-out monistic universe suffers from as from a species of auto-intoxica-

tion, the mystery of the fall, namely, of reality lapsing into appearance, truth into error, perfection into imperfection; of evil, in short; the mystery of universal determinism, of the block universe eternal and without a history, etc.—the only way to escape, I say, from all this is to be frankly pluralistic and to assume that the superhuman consciousness, however vast it may be, has itself an external environment and consequently is finite. . . . The line of least resistance then, as it seems to me, both in theology and philosophy, is to accept along with the superhuman consciousness the notion that it is not all-embracing, the notion in other words, that there is a God, but that He is finite either in power or in knowledge or in both at once.”^a

Mathematical physics is tending to substantiate the view of the universe as finite. The labours of Einstein have led to actual computations of the dimensions of the universe. Its circumference has been estimated, very hypothetically, as about one hundred million light years, the equivalent of about six hundred million million million miles. The weight of it also has been computed at about 1,054 grams, or about one hundred trillion times the mass of the sun. The universe of the relativists is a four-dimensional curved world with space and time interpenetrating. Probably the powers of imagination of most people are so limited that a universe as vast as the computations of Einstein and his coworkers is practically infinite. He is left wondering what could be outside such far-off limits. It is apparent, however, that the old ideas of space and time as absolute must be abandoned, as also the older notions of matter and motion. Cer-

^a *A Pluralistic Universe*, p. 310 ff.

tainly the resultant picture of the universe appeals to one's sense of wonder quite as much as one in which the magical and the miraculous function more. There is no escape for the religious man, nor should he desire it, from adjusting his thinking concerning spiritual values to this view of the universe that is presented by modern science.

It is sometimes argued that the concept of infinity originated in mathematics, and is not strictly a religious notion. It is defined as the "conception of any sort of mental object as having *quantity* which cannot be exhausted by any succession of experiences, however prolonged."¹⁰ When we describe a quantity as infinite we mean that it exceeds any boundaries or values which the human consciousness is able to span. When the concept of infinity is thus applied to God, it is intended to describe His transcendence, but being a quantitative term it does not really express any religious value. Religion is an affair of the practical life, and it makes practically no difference to men whether we suppose that God is infinite or finite, so long as we find in Him those spiritual qualities for which the heart of man longs. Furthermore Zeno the Eleatic many centuries ago showed by his antinomies that the concept contains logical pitfalls which it is impossible to escape. However true it may be that the concept may have originated with mathematics and is largely a term of quantitative significance, it must be responded that such is scarcely the whole

¹⁰ Baldwin: *Dictionary of Philosophy and Psychology*, art. "Infinite and Infinity."

truth. In the minds of most people the infinity of God has reference to His qualitative transcendence. Whether the reference be to His knowledge, His power, His purity or His love, it means more than simply that God possesses all of these things without quantitative limitation, and bears the significance that they are also qualitatively incomparable. The truth is that neither quantity nor quality is a *ding-an-sich*. Any attempt to separate them sharply, the one from the other, would be as invalid as the attempt to discriminate sharply between value judgments and existence judgments. It is not possible to rule out the concept of infinity from the idea of God as being a purely mathematical term and therefore falling solely under the purview of science. For many people it is expressive of the transcendence of God, a value which they cherish greatly and without which His divinity would suffer. The fact that the human consciousness cannot adequately comprehend the meaning of the concept is for them all the more reason for associating it with God.

An object is known through its qualities, whether it be an object of scientific interest or a religious object. It is not possible, therefore, for science to ignore qualities entirely, any more than it is possible for religion to be altogether oblivious to the quantitative. The differentiation is valid within the limits of general attitudes and tendencies. But it must not be supposed that it can be erected into a high boundary wall to prevent trespassing on either side by the other party. The *Weltanschauung* of any person or group

is determined by the interaction of both the religious and scientific aspects under the guidance of philosophical criticism.

V

It has been suggested that religion and science may be differentiated on the basis of their typical activities or expressions. The typical expression of the religious life is mysticism, that of science is logic. Here again we have a distinction which is in a sense a corollary of our original differentiation, viz., that the religious attitude is social and the scientific is mechanical. The typical procedure of the social is mysticism, and of the mechanical is logic. Another way of expressing it is to say that the religious attitude is one of participation while the scientific is criticism.

(Mysticism takes many forms, but they have this in common that the mystic seeks for a life of intimate communion with God that culminates in absorption. It represents the attempt of the religious consciousness to understand the nature of religious reality, and, having conceived it to be amenable to social relationship, to enter into fellowship therewith. Sometimes the emphasis is on the metaphysical and speculative side, and sometimes on the personal and practical. There are many degrees of intensity, concentration, ecstasy and absorption in the experiences of the mystics. Yet in some form or other the experience is characterized by the conviction of a real contact and vital communion with God.) The mystic life is described by all mystics as one which gradually expands, and there is a remarkable similarity in the

descriptions of mystics of different religions concerning the manner in which the mystical life is developed or the stages of the process. J. B. Pratt describes²¹ it as involving three stages, (1) the negative or purgative stage in which the mystic seeks to be purified by the processes of inhibition and asceticism; (2) the positive, meditative or illuminative stage which consists of using various devices of auto-suggestive tendency such as meditation and the assumption of physical postures as in Yoga practices; and (3) the ecstatic or unitive stage in which the mystic loses consciousness of the world of sense either wholly or partially, and enters a rapturous state in which the consciousness of God is unique and ineffable.

All of the higher religions have their mystics. India has been a home of mysticism for at least as many centuries as there is historical record. The Upanishads have taught that the highest achievable religious experience is the complete absorption of the individual soul (*atman*) in the cosmic soul (*Brahman*). "Thou art that"—*tat tvam asi*—is the formula which expresses the goal of all striving. The Yoga philosophy is the school of thought which has worked out a system of practical discipline whereby such an ideal may gradually be realized. The control of the breath, the recitation of mystic syllables, and the use of certain bodily postures are all designed to aid the processes of contemplation whereby the goal may be achieved. The Sufis are the mystics of Islam. The movement originated in Persia but spread into India and other Muslim countries. The Sufis aspire to a

²¹ *The Religious Consciousness*, pp. 363-429.

mystic absorption in God through the bond of an ineffable love. The dominant desire of the Buddhist is the conquest of all desire, and its attendant ills. The method whereby that is to be achieved is mystical, the annulment of all worldly ties such as those of family and friends (*via negativa*), the association with the *sangha* of those like minded, and meditation on spiritual affairs. In Plotinus and other Neo-Platonists we see the same type of discontent with the world and its knowledge, and the effort to aid the spirit in its procession back to its divine source. Christianity has had many mystics, especially in the middle ages. The Christian, like other mystics, thought that the liberation of the spirit involved the mortification of the flesh. Some of them, like Simon Stylites, went to excesses in negative ascetic practices. Others, like Brother Lawrence, thought "the most excellent method . . . of going to God was that of doing my common business purely for the love of God," and through the life of service have tried to "practice the presence of God." The social character of the mystic experience is brought out frequently in the analogies which they use, among the most frequent being that of marriage, God the bride and the mystic the groom, or among Hindus God the guru and the mystic his disciple.

(Mysticism is particularly typical of religion because it is so completely an expression of the social attitude towards the extra-human. It is the essence of participation. The characteristic attitude of the worshipper in prayer, sacrifice or votive offering is practically the same as the mystical. He is a participant in social activities, not simply with his fellow worshippers but

with God. And such participation gives him a sense of union and communion which may lead even to an experience of rapture. Mysticism might almost be described as the concentration of that participating attitude which characterizes all real worship, and in that sense it is the soul of religion.)

(In contrast with all this social, mystical experience the typical procedure of science is analysis and criticism. Science by means of analysis and critical reflection enables us to deal more efficiently by mechanical means with fragments of experience. The technique which it develops is the mental and physical machinery of the theoretical and practical sciences. Its mental machinery is largely devised in the laboratory of logic, and the tests which it imposes upon itself as well as upon other disciplines are logical in character. Scientific knowledge is achieved only by the rigidly logical method of scrutinizing, analyzing, classifying, and synthesizing. The psychological explanation of the fact that people sometimes "go up to the temple to pray" and to worship, but come away feeling that they have failed is that they have adopted the scientific attitude of analysis and criticism instead of the religious attitude of participation. No one can deny the immense service of criticism to the various human disciplines including religion itself. Nevertheless it must be admitted that criticism is not a religious exercise any more than worship is scientific activity. God is not to be found either in the scientist's laboratory or at the end of the syllogism. Yet God is found and known and communed with. He is found in the deeper social experiences when men, in the sense of

utter dependence, reach out in faith and venture to trust. There is nothing to be gained by the scientist who complains that his critical methods do not give him God. He who would know God and deepen his religious experience must do so by means of social processes such as prayer and worship. And faith establishes her validity in that truth and values are achieved by a method which could never be attained by logical processes.

I stretch lame hands of faith and grope,
And gather dust and chaff, and call
To what I feel is Lord of all,
And faintly trust the larger hope.**

VI

It has sometimes been maintained that human experiences are separable into two groups, the one subjective and irrelevant to science and the other objective and scientific, but without religious significance. To begin with we must be guarded against making the distinction between the subjective and objective too radical. The vast majority of human experiences involve a subject-object relationship, and are irreducible to either element alone. Having made that qualification, we may admit that the religious attitude is the more subjective and the scientific attitude the more objective of the two.

The scientist evinces a certain amount of subjectivism in selection of the objects for his investigation. And some scientists display a considerable

** Tennyson: *In Memoriam*, LV.

amount of subjectivism, particularly when dealing with mental and social sciences, in the treatment of their data. But it must be admitted that such subjectivism always jeopardizes a man's scientific work, for the typical scientific procedure is to select and classify only such elements as can be the objects of clear observation and inference. The sum total of the elements with which scientists deal is the objective world. His endeavour is to get behind all subjective matter, all interpretation to the facts as they appear at first hand. "The scientific man," says Karl Pearson, "has above all things to strive at self-elimination in his judgments, to provide an argument which is as true for each individual mind as for his own. The classification of facts, the recognition of their sequence and relative significance is the function of science, and the habit of forming a judgment upon these facts unbiased by personal feeling is characteristic of what may be termed the scientific frame of mind."²

I recently met a lawyer searching in the library of the University of Madras for data from which he could decide a legal point involved in whether or not a *gopuram* was an essential in a Hindu temple. He said he could find many descriptions of *gopurams*, and some interpretations, but these matters were of no value for his immediate inquiry. Obviously, though he was dealing with the institutions of a religion, his inquiry was scientific, and he was quite right in insisting on its thorough objectivity.

On the other hand the religious man deals with values, meanings and interpretations which are per-

²² *The Grammar of Science*, p. 2.

sonal matters. The religious relationship is a relationship between persons, and since the Other of that relationship is spiritual but not corporeal, it is inevitable that it should be more subjective. It is a curious animadversion to imagine that to describe an attitude as subjective is to condemn it. A subjective attitude is personal. It emanates from a person, but not without reference to the experiences of the past. Even the sciences must admit their debt to personality without which they would never have come into existence. They have to give an account of psychological facts as well as physical, so that the distinction between religion and science on this basis is relative but not absolute. On the other hand the vast majority of religious people would be very much dissatisfied with any view of the universe which questioned objective existence in God. Nevertheless an objective existence in religious reality is not something which can be checked by the processes of sense-perception. It is a matter of faith, the demonstration of the validity of which is its functional worth in human experience. The claim of validity for the religious object is a problem of metaphysical rather than physical consideration. And here again the boundary cannot be rigidly demarked. The differentiation sometimes put forward that science deals with the physical and religion with the metaphysical is not even a half truth, for metaphysics is dependent for its worth on the scientific method. What are atoms, molecules, electrons, vitamins, etc., but the metaphysical assumptions of the scientist concerning which he can establish validity and objectivity only by their functional

worth? Even time and space, two concepts of first-rate importance to scientific investigation, are metaphysical and not objective.

In psychological language we may say that the scientist makes more use of sense-perception, and the religious man of imagination. Perhaps it would be more accurate to say that the scientist and the religious man each makes a characteristic use of the imagination. By imagination we mean the flow of reinstated sensory experiences in consciousness, and we must carefully guard against presupposing images to be structures of the mind. Sense-perception is, of course, the basis for imagery, and the manner in which images appear and fuse in consciousness is determined by the combined influences of the various stimuli, external and internal, operating on the subject. The scientist in the observational processes depends much on the accuracy of sense-perception, but in the formation of hypotheses he designedly combines images in the trial-and-error method of attempting to solve his problem. In achieving that end, however, the scientist is very careful to combine his imagery with precision of reference to the problem in hand and the kinæsthetic manipulation desired. In contrast with that the religious man is aiming to control his environment by social means for spiritual ends, and the manner in which he combines imagery is with reference to that end. In science images need to be combined with reference to calculations involved, and any inaccuracy destroys the value of the results. In religion felt needs guide our procedure, and the processes of association are often determined by the social mind. The ele-

ments of the imagery are always to be found in the experiences of the past, but the association of them may be novel and eccentric. We have had sense-perceptual experiences of monkeys, elephants, lions and men, but a Hanuman, a Ganesh or a Narasimha are the products of the creative activity of the religious imagination. So also the conception of a heavenly Father is a construct of the image-forming tendency of consciousness, the elements of which have been acquired in sense-perception.

"It is preëminently the external world," says J. T. Merz, "that is the subject of all methodical and communicable knowledge and gives rise to what we term science. This deals almost exclusively with distribution in space and succession in time as the properties of definite things and events. It relies on, and works with the atomizing or dissecting process."¹⁰ Since the sciences deal with the external world, handle their data methodically, and aim at communicable knowledge, there is a minimum of danger of scientific solipsism. The scientist believes that he is acquiring knowledge of the external world and not of mere states of his own consciousness. F. H. Bradley stated the argument of solipsism as follows: "I cannot transcend experience and experience must be *my* experience. From this it follows that nothing beyond myself exists, for what is experience is its (the self's) states."¹¹ Sometimes the psychological character of religious experience has been pushed so far that it has resulted in a solipsistic interpretation. It is suggested

¹⁰ *Religion and Science: A Philosophical Essay*, p. 85.

¹¹ *Appearance and Reality*, p. 248.

that we may have an idea of God, but cannot establish the fact of any reality external to the mind. Prayer in that view becomes a healthful exercise in auto-suggestion, but nothing more. The argument is subject to all of the extravagancies and fallacies of solipsism. It assumes that a cognitive state can have itself for its own object; it neglects well-known truths that anyone knows are external to one's own consciousness; it neglects the stimulus-response relationship in the mental life; and it takes no account of other selves which are conscious. There seems no valid ground for arguing that such a universal experience as the consciousness of God, though it is admittedly subjective in the good sense, would have no stimulus other than a state of consciousness. We have at least the pragmatic retort that the person who assumes the opposite, who assumes that there is no reality to stimulate the sense of God, comes to grief just as surely as the man who denies the existence of a post and tries to walk through that part of space, where the post is imagined to be.

The historical struggle between the scientists and the representatives of religion is in the last analysis a struggle between two world views. Science offers us a world view that is naturalistic. It presents us with a world the behaviour of which is calculable by the formulas of determinism. Religion holds up before us the picture of an ideal world, a world in the process of becoming, a world which we build out of the images created in response to our experienced needs. Each is enlisted in the service of life, the more abundant life. Their serviceableness to life, each in its own

way, is the best apologetic that can be offered for them. Each is the outcome of an ineradicable tendency in human life, and each is able to offer a service which the other is not fitted to render. No ultimate conflict is possible between them because we need them both in the struggle for existence, for each is a contribution to the larger life. There is no need to prophesy about a "survival of the fittest," they are best understood through the doctrine of "mutual aid." The following quotation from William James puts the matter in his inimitable way:

Science gives to all of us telegraphy, electric lighting, and diagnosis and succeeds in preventing and curing a certain amount of disease. Religion in the shape of mind-cure gives to some of us serenity, moral poise and happiness and prevents certain forms of disease as well as science does, or even better in a certain class of persons. Evidently, then, science and religion are both of them genuine keys for unlocking the world's treasure house to him who can use either of them practically. Just as evidently neither is exhaustive or exclusive of the other's simultaneous use. And why, after all, may not the world be so complex as to consist of many interpenetrating spheres of reality, which we can thus approach in alternation by using different conceptions and assuming different attitudes, just as mathematicians handle the same numerical and spatial facts by geometry, by analytical geometry, by algebra, by the calculus or by the quaternions and each time come out right? On this view religion and science, each verified in its own way from hour to hour and from life to life, would be eternal.

^{**} *Varieties of Religious Experience*, pp. 122, 123.

VII

It is perfectly obvious that the progress of the scientific method has resulted in the disintegration of the antecedent magical interpretation of the universe. The modern man does not believe that this is a world in which anything may happen, much less may be made to happen. The undifferentiated continuum of primitive mentality has yielded to a finely articulated and increasingly rationalized view of the disciplines of life. The influence of the sciences has been in the direction of liberating life from the fetters of arbitrariness and caprice. While science makes no claim to solving all the problems of life, it has made it patent that unscientific solutions are untenable. This new freedom makes it possible for ethics to achieve new concepts of righteousness, and religion new meanings and motives, both of which involve enlarging hopes and responsibilities. It does not detract from the adventure of religious faith to know that it is experienced in a world that is in many respects calculable as to its behaviour, but it makes of it what Mr. Wiggam describes as "a greater and finer art and an adventure filled with meaning." Science has immensely enriched life by giving us control over physical and social forces that minister to health and happiness, and, in doing so, far from hampering religion, it has freed it for a more unembarrassed devotion to its spiritual task. The opposition in some quarters to freedom in the teaching of modern science is in the last analysis an attempt to retain the old magical world order as if it were the only one in which religion could function. Science is offering to religion a world

of surpassing beauty and wonder, a world that is dependable and intelligible, and who shall deny that such a world offers richer meanings and a profounder conception of the meeting of God in human experience? If it were possible to have an experience of God in the old world of alchemy, astrology and sorcery, surely the possibilities are richer far in the new world that science is interpreting to us.

One of the most characteristic features of modern science, and one to which religion must always be sensitive, is the scientific temper. That temper may be described as a single-minded devotion to and an unflagging zeal for the truth. The scientist believes it to be his privilege and duty to harness every available force in the environment for the enrichment of life. His faith carries with it far-reaching implications. It means for one thing the willingness to abandon any instrument, physical or mental, that has ceased to be serviceable. It involves a readiness to experiment fearlessly and conscientiously for the sake of discovering the best means of curing human ills and reconstructing life on a larger plane. The experimental method and attitude have succeeded admirably in the physical and natural sciences, and have cleared away much that was confusing and irrelevant to the particular problems under advisement. The result has not been the deletion of all mystery from life, but rather a clearing of the issues so that we may have a much clearer conception of the nature of our problems. It is not an indication of irreverence but rather of adventurous faith that carries this experimental temper into the field of religion. The knowledge of God is not innate, and it

is only as we live adventurously and with minds wide open to truth that we learn the reality of God in experience. Religion has nothing valuable to lose and everything to gain by its contact with the scientific temperament. For both of them are in search of the truth and the whole truth. There ought therefore to be the most cordial coöperation between them. Such coöperation for religion means association with the best knowledge about the behaviour of nature which is God's workshop. The discoveries of science are in some respects akin to divine revelations. Man has learned that the sciences are putting into his hands increasingly the means for answering his own prayers, and for winning salvation from some of the things that obstruct and prevent the attainment of abundant life. There is a great truth in Mr. A. E. Wiggam's contention that "the social organization of science is simply the technical administration of the love of God." **

Truth from any source ought to be welcomed alike by the man of science or the religious man. Both claim to be seaching for truth, each in his own way, and each should welcome the truth that is discovered by the other.

The Truth is in the Universe,
In earth and sea, in sky and air,
In man and beast, and holy book,
The truth is everywhere,
For God is truth.

The recognition that there is truth in the world without and truth in the heart of man should be hearty and

** *The New Decalogue of Science*, p. 134.

fearless. Some truth is revealed as we manipulate our environment in mechanical ways; other truth comes only as the soul of man reaches outward and upward socially. But unless the universe be incoherent and discordant, there should be no ultimate conflict between the truths of science and the truths of religion.

There are certain particular truths which the scientist has discovered, truths in regard to the character and constitution of the universe in which we live, that ought to be cordially welcomed by the religious man, because they help him to understand the character of the world in which he lives and experiences the presence of God.

(1) One of the most obvious truths to which science has given emphasis is that the universe is orderly, that it is a cosmos and not a chaos.) As Professor J. Arthur Thomson has said: "There can be no loopholes in a cosmos." " Events are calculable with remarkable precision, and we are able to make plans in great minuteness and expect to carry them to fruition. The recurrence of the seasons in regular succession, the periodical alternation between day and night, the motion of the heavenly bodies in their orbits, the conditions of life and of death—all of these and many other facts impress us with the amazing regularity that characterizes the phenomenal world. There was no fact that left a deeper impress on the Greek mind than the harmony of the universe, though some of them thought it was due to blind necessity. It reminded Carlyle of a perfect clock, the handiwork of

" *Science and Religion*, p. 218.

the divine Craftsman who could sit outside of it all and revel in the contemplation of His creative skill. But to the religious consciousness order and harmony testify to the precise reverse of blind necessity. In spite of all the subtle arguments of a Kant, the average human mind finds it difficult to imagine a harmonious design without a designer. A purely mechanistic theory explains nothing—neither the existence of the mechanism, nor the energy that drives it. (The religious man believes that there is intelligence and purposiveness at the heart of the cosmos; otherwise it would not be a cosmos. Harmony and order are tokens of the immanence of God as well as of His transcendence. They speak to us of a God who is ceaselessly active, creatively and redemptively active in His universe. We make our plans for the future, and continue at our appointed tasks with no fear of the machinery going to smash or the cosmos order being suddenly reversed. There is no danger of cosmic lawlessness, for God is at the heart of things.

(2) Another great truth which science has disclosed is that the universe is characterized by development. It is tragic that certain religious people so interpret the word "evolution" that they hold it to be impossible to believe in evolution and be religious. To many others, on the contrary, it is much more serviceable to the religious consciousness than the creationistic hypothesis. Renewal, growth, fertility, contingent perfectability, mutual aid, these are all conceptions which are significant at once for religion and science.)
~~Dr. Faunce says:~~

The doctrine of evolution, rightly understood and interpreted, is today one of the most powerful aids to religious faith. It has delivered thousands from perplexity amounting to despair. It has supplanted the old paralyzing conception of a "world-machine," a world mechanical and lifeless, grinding human destiny without end. In place of that soulless mechanism we have a growing organism. (In the words of John Fiske, "The simile of the watch has been replaced by the simile of the flower." A developing world, still in the process, ceaselessly unfolding, still to be shaped by human purpose and effort—that is the inspiring conception now placed in the hands of the church by modern science."²

(To those who conceive of the kingdom of God as cataclysmic the conception of evolution is doubtless unwelcome. But many find vital religious value in the psychological notion of unfolding personality, progressing more and more towards the ideal person—God Himself. It is surely possible to grow in grace, in *bhakti*, in divine wisdom, in truth, in virtue, in character. The Hindu and Buddhist think of an evolution of the *atman* (individual soul) till it be absorbed in the *Brahman* (world-soul). And the Christian believes in the possibility of growth in grace and in the knowledge of God. "First the blade, then the ear, then the full corn in the ear" was the analogy whereby Jesus pictured the manner in which God's kingdom is established. Many men find it a most inspiring conception to think of the evolutionary process as evidence of the immanent activity of God.)

²² Art. in *World's Work*, March 1923.

A fire mist and a planet,
A crystal and a cell,
A jelly-fish and a saurian,
And caves where the cave-men dwell;
Then a sense of awe and beauty,
And a face turned from the clod;
Some call it evolution
And others call it God.

(3) Science teaches us yet another great truth, namely that the development of the universe is not aimless, but purposeful. In other words it is development plus direction. To be sure, the man of science cannot answer in full the question as to what purposes are involved in the development of the universe. Yet in spite of paucity of knowledge, there are many scientists who insist that there is overwhelming evidence for teleology. The astronomer does not know the end, but believes that the evidence points to a regularly ordered development in the universe. The biologist finds many facts in the structures and functions of living organisms that indicate purpose. The social sciences, such as ethics and sociology, can marshal a host of facts to support the same contention. All of this is valuable for the religious man. Yet we cannot neglect the fact that there are many others who claim to be unable to find any evidence for purpose in the external world. Dean Inge thinks that "the dispute about teleology is a dispute about nature's method, religion not being vitally concerned." He describes it as "a quarrel between two scientific theories: the Aristotelian theory that the 'nature' of anything is to be found in its completed development, and the modern

theory of natural selection.”** After all, perhaps the greatest argument for purpose comes from quite another sphere—the sphere of faith. The religious man is happy that so much scientific evidence can be adduced for purposefulness. But even if there were less, he would claim the right to say—the right of faith to say—that since he believes this is God’s world it is a world that throbs with purpose. The scientific agnostic may defy him to prove his claim. He can at least retort that the reverse is much more improbable and unprovable, and that until the mechanistic theory be proven, he can claim the right to his faith. The universe is “a realm of ends” to use Professor James Ward’s happy phrase, a realm of ends in which “God is love indeed, and love creation’s final law.”**

(4) Another truth about which science is able to teach us much is that the universe is wonderful. Those who have read ever so little of the science of astronomy must have been filled with the sense of wonder as they have contemplated stars whose numbers are in the millions, and of distances of millions of miles. For practical human purposes such incomprehensible calculations are equivalent to infinity. We know for example that the light of some stars, travelling at the rate of 186,000 miles per second, takes at least 200,000 years to reach us. There are probably stars, the light of which we enjoy at night, which have long since been extinct. Can we ponder such facts, and be dead to the sense of wonder? In contrast with a universe of such magnitude, the Psalmist might well exclaim, “when I

** *An Outline of Christianity*, “Religion and Science,” IV, p. 5.

** *The Realm of Ends*, p. 453.

consider thy heavens, the work of thy fingers, the moon and the stars which thou hast ordained; what is man that thou art mindful of him? and the son of man that thou visitest him?"²² Or, if we turn to the anatomy and physiology of the human organism, and study the nervous system in all the intricacies of its organization, the cerebral cortex with its nine billions of cells or one little organ like the ear or the eye and its niceties of adjustment, can we remain unmoved by the wonder of the mechanism and its adaptations? Even the observation of a tiny flower in the minuteness of its detail and the delicacy of its beauty truly fills us with wonder, as it did Tennyson.

Flower in the crannied wall,
I pluck you out of the crannies,
I hold you here, root and all, in my hand,
Little flower—but if I could understand
What you are, root and all, and all in all,
I should know what God and man is.

The sense of wonder is surely very much akin to the spirit of reverence. It is this sense which makes belief in miracle for so many people an end to religious faith. Our English word "miracle" which literally means "something wonderful" expresses the wonder of the man of faith which drives him on to the God, who, he believes, is at the heart of it all.

VI

The recognition that science is unfolding great truths which religion must welcome does not mean that religion is in any danger of being supplanted by science

²² Ps. viii. 3, 4.

as a way of life. Science has neither the technique nor the knowledge ever to become a substitute for faith. For there are other great truths which are discoverable only by the processes of faith, and there are facts of experience which are revealed only as men believe in God and act in accordance with their belief. Furthermore the experiences of the human race in the long run have made it abundantly evident that science has no right to question these revelations, because they are neither discoverable nor criticizable by scientific methods. The truth is that science has seldom questioned religion as a whole, but only certain aspects of belief have come in conflict with scientific knowledge. Professor A. N. Whitehead has reminded us "that religion is the expression of one type of fundamental experiences of mankind; that religious thought develops into an increasing accuracy of expression, disengaged from adventitious imagery; that the interaction between religion and science is one great factor in promoting this development." **) Faith is just as dynamic as science, and cannot be disintegrated because of advancing scientific knowledge. We do not look forward to a "non-religion of the future" as the Positivists do, but to a faith emancipated from embarrassing associations with magic or decadent science, ever achieving new values and enlarging man's vision of God.

(1) The religious man insists that this world is full of meaning. It is more than a continual succession of ground and consequence, more than a concourse of molecules and electrons in a material mass, more than

** *Science and the Modern World*, p. 273.

a mass of adaptations of organisms to environment, more than a process of metabolism within a living organism. It is more than a mechanism, more than a material world. It is a world in which there are social facts as well as mechanical, spiritual facts as well as physical. We men are just as truly spiritual beings as physical organisms. And the great power by which the whole creation moves is a spirit.

Religious faith in Providence is the outcome of man's insistence that the world shall have meaning. Man persists in reading meanings in earthquakes, famines, floods, disease, war, death, and all sorts of pestilential experiences. The creed of naturalism is not enough to enable us to be patient and courageous in times of trouble. But there is meaning also in our pleasures and successes. Adversity is understood as God's chastening, and prosperity as His bounty. Thanksgiving for the rain in due season, the abundant harvest, the happiness of our homes, the loyalty of our friends and the liberties of our democracies is man's recognition of the hand of God in benevolence. The religious man is humbled by his failures but not disheartened; he is encouraged by his successes but not conceited. Whatever life may have in store for him, of good or of ill, he believes it is ultimately significant, and can be turned to service for the development of faith. This is the faith that understands the sun shining on the evil and the good and the rain descending on the just and on the unjust as the providential goodness of a heavenly Father. It was such a faith as made Whit-tier sing,

I know not where His islands lift
Their fronded palms in air.
I only know I cannot drift
Beyond His love and care.

(2) Furthermore our faith leads us to believe that this world must afford a home for a man with spiritual aspirations. Science has taught us how the birds and the beasts and the flowers adapt themselves to their environments. It may even inform us how man, the psycho-physical organism, makes his adaptations to environment. But it is only by faith and experience that we can learn the possibilities of a life lived in the sense of comradeship with God. How can we know that our ambitions do not mock us, that our strivings are not all in vain, and that our ideals are not mere fantasies of the imagination? It is by faith and experience under the guidance of faith that we can be relieved of such despair. It would certainly be intolerable if we were left despondent of the possibility of spiritual achievement. But we believe that God and the universe are on the side of the man who is striving for the highest values, that love and hope and goodness will eventually triumph over hatred, error and evil. And we frankly acknowledge that there is no scientific method by which we can demonstrate this. Yet we insist on the right of our faith and as William James put it, we deny the right of any pretended logic to veto our faith.

There are people whose outlook on the world is pessimism. They believe that the processes of nature indicate more of the tooth and the claw than of the helping hand. The struggle for existence is marked by

keen competition in which the weaker are despoiled by the stronger. It is impossible to decide a problem of this kind by amassing scientific evidence. But the man of faith would not accept the decision of pessimism, even if he were persuaded that the weight of scientific testimony was on its side, which is not the case. If he were not an optimist believing that

God's in His heaven;
All's right with the world,

he would be at least a meliorist, believing in the possibility of making the world safer and better for his children, and of coöperating with God in His task of righting the world's wrongs and of overcoming its evils.

(3) A third great truth that transcends scientific truth is that this is God's world. We refuse to believe in a dualism between the natural and the supernatural. By faith we understand that the supernatural is thoroughly natural, and that the natural is shot through and through with the supernatural. We refuse to admit that cosmic processes are all physically determined and mathematically calculable, for cosmic processes are not all or only mechanical. Indeed our faith leads us to believe that the things that matter the most are not the facts and phenomena of the physical universe but the struggles, tasks, and values of the moral and spiritual world. We refuse also to believe that the moral control of the universe is divided between two powers, one of good which we call God and one of evil which we call the devil, and that the latter power is temporarily in the ascendant.

To admit that the world is thoroughly bad and that we are powerless to improve it is to rule God out of His universe and admit defeat. God need not destroy the world by a cataclysm to defeat the evil. He can do it in and by us, his human comrades.

The world is characterized by imperfections enough without admitting that the moral and the religious struggle is hopeless. How else would progress be possible? But the presence of imperfection does not spell the defeat of God. Because God is at the heart of the universe, the religious man believes that evil can be overcome, man can be redeemed, and love can emerge triumphant from the struggle of the ages.

